FACT SHEET FOR NPDES PERMIT WA0020982
CENTRALIA WASTEWATER TREATMENT UTILITY

SUMMARY

The City of Centralia currently has a trickling filter plant that has been granted exceptions to secondary treatment standards.

DISSOLVED OXYGEN TMDL: Based upon findings of a total maximum daily load (TMDL) submitted by the Department, the publicly owned treatment works (POTW) and the Department entered into a Consent Decree with respect to the authorized load allocations of several oxygen demanding pollutants to the Chehalis River. While important to this action, it was careful not to infringe upon the Department's obligation to apply current or future water quality standards to pollutants in the discharge. The loading restrictions of the Consent Decree are additional limitations considered in this action. The ultimate load allocations are higher in some cases than what the proposed new facility can accommodate.

NEW POTW: The City of Centralia has applied for, and been selected to receive, the Department funding for the construction of a new wastewater treatment plant. This facility will be located downstream of the confluence of the Skookumchuck River (as required by the Consent Decree). The schedule for construction of this facility was used to develop milestones in the proposed permit. This schedule is well within the maximum time authorized for meeting the Consent Decree requirements, and therefore complies with the Consent Decree. While some general characteristics of the area of the new outfall are known, to determine effluent limits, the exact outfall location of this new facility must be sited. Therefore, the Department will need to receive an evaluation of mixing from a new outfall structure before appropriate limits for the new outfall can be determined. Discharge at the new outfall will require a permit modification if desired prior to the expiration of this permit.

TEMPERATURE TMDL: The Department has been developing a temperature TMDL for the Chehalis River. The proposed implementation strategy is to now require additional monitoring and evaluations of technologies available to the POTWs that discharge to critical stretches of the Chehalis River. The proposed permit includes those requirements. This information is critical to determining what actions are reasonable and cost-effective requirements of the Permittee with respect to the thermal component of its discharge.

DEFERRED REQUIREMENTS: The Permittee must determine whether compliance with Whole Effluent Toxicity (WET) and water quality standards for toxics are met with a new plant and outfall. This evaluation requires the new treatment works to be in place. For toxics, we also need a baseline of effluent data, ambient concentrations, and to establish new mixing zone ratios.

NEW LIMITS: Some limits of the 1996 permit were adjusted in this proposed permit action. Concentration based limits for ammonia were replaced with mass limits to promote additional I&I work. Loading limits were also established for the new POTW based upon the approved design criteria and component sizing.

TABLE OF CONTENTS

INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later modifications, 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One of the mechanisms for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System (NPDES) of permits, which is administered by the Environmental Protection Agency (EPA). The EPA has delegated responsibility to administer the NPDES permit program to the state of Washington on the basis of Chapter 90.48 Revised Code of Washington (RCW), which defines the Department's authority and obligations in administering the wastewater discharge permit program.

The regulations adopted by the state include procedures for issuing permits [Chapter 173-220 Washington Administrative Code (WAC)], technical criteria for discharges from municipal wastewater treatment facilities (Chapter 173-221 WAC), water quality criteria for surface and ground waters (Chapters 173-201A and 200 WAC), and sediment management standards (Chapter 173-204 WAC). These regulations require that a permit be issued before discharge of wastewater to waters of the state is allowed. The regulations also establish the basis for effluent limitations and other requirements which are to be included in the permit. One of the requirements (WAC 173-220-060) for issuing a permit under the NPDES permit program is the preparation of a draft permit and an accompanying fact sheet. Public notice of the availability of the draft permit is required at least thirty days before the permit is issued (WAC 173-220-050). The fact sheet and draft permit are available for review (see Appendix A--Public Involvement of the fact sheet for more detail on the Public Notice procedures).

The fact sheet and draft permit have been reviewed by the Permittee. Errors and omissions identified in this review have been corrected before going to public notice. After the public comment period has closed, the Department will summarize the substantive comments and the response to each comment. The summary and response to comments will become part of the file on the permit and parties submitting comments will receive a copy of the Department's response. The fact sheet will not be revised. Comments and the resultant changes to the permit will be summarized in Appendix D--Response to Comments.

GENERAL INFORMATION	
Applicant	City of Centralia
Facility Name and Address	Centralia Wastewater Treatment Utility 1401 West Mellen Street Centralia, WA 98531
Type of Treatment:	Trickling Filter (pre-1984)
Discharge Location	Chehalis River at River Mile 67.4 Latitude: 46° 42' 47" N Longitude: 122° 58' 34" W.
Water Body ID Number	WA-23-1020

BACKGROUND INFORMATION

DESCRIPTION OF THE FACILITY

History: The original facility was constructed in the early 1950s. That facility provided primary treatment and has since been upgraded to secondary treatment using trickling filters. The most recent

upgrade of the plant and collection system occurred in 1977-1980 with assistance from state and federal funds. Grouting of the collection system was found to be ineffective in the Centralia area. Pipeline replacement is the preferred method to reduce infiltration and inflow (I/I) in future rehabilitation projects in the Centralia collection system.

COLLECTION SYSTEM STATUS AND I/I WORK: The plant and collection system are primarily located in the lowlands surrounding the confluence of the Chehalis and Skookumchuck Rivers. This relatively flat area is characterized by high ground water levels, permeable soils, and occasional seasonal flooding during storm events. These conditions, combined with the existing collection system, contribute to the system's high levels of inflow and infiltration (I/I). The plant itself is well maintained and operated but cannot continuously achieve secondary treatment limitations during periods of elevated hydraulic loading and dilute influent caused by I/I. The Consent Decree exempts the City from additional I/I removal projects until a new facility is constructed. This does not alter requirements to provide routine maintenance, which is critical to keep I/I from getting worse. This maintenance would reasonably need to include replacement of a certain number of the most leaky pipes, and a continuing comprehensive sewer line inspection program. This requirement is reinforced by the permit.

TREATMENT PROCESSES: The facility is comprised of a headworks, five primary clarifiers, two trickling filters, two secondary clarifiers/chlorine contact basins, and a dechlorination system. The headworks consists of a 24-inch Parshall flume, grit tank, two comminutors, and bar screen. The trickling filters are followed by dual 12-inch Parshall flumes that discharge to the two secondary clarifiers. The clarifiers also serve as the chlorine contact basins.

The facility currently services a population of 13,400 and is classified as a Class III wastewater treatment plant in accordance with the Department rules. The chief operator is currently a Group IV level operator and supervises four additional operators and a laboratory technician. This facility is operated eight hours per day (0800 to 1700), five days per week with six operating staff during the week and one staff for two hours per day on weekends. The emergency alarm system for the plant and pump stations is tied into telepagers to notify the on-call operator or on-call collection system staff in the event of an alarm activation. See Appendix D for "Schematic of Wastewater Flow."

Domestic, commercial, and industrial wastewaters are collected in a common sewage collection system and routed using 24 pump stations to the plant.

There is very little industrial wastewater discharged to the collection system and, therefore, little potential for significant industrial impact on plant processes, treated effluent, or waste solids at the plant. Permitted industrial users include the Daily Chronicle and the Lewis County Transfer station. Leachate from the Centralia landfill is not routed to the wastewater treatment plant and such disposal is not planned at this time. The majority of commercial users are restaurants and motels. Septage pumping trucks are not permitted to discharge to the plant.

The Facility has been recognized as unable to treat the flow and loading volumes it receives to the standards of treatment required at its discharge point. Therefore, the City has applied for, and been offered a grant and loan package to construct a new treatment plant. The request for funding included a timeline that the Department accepts as the shortest reasonable time frame for constructing the treatment plant. That timeline has been incorporated into the permit in the form of compliance milestones. Federal regulations require that the milestones be generally no more than one year apart, and that the Permittee submit a report within 30 days after each milestone that indicates whether or not the milestone has been met, and if not, the reasons and impact on later milestones. These requirements were included in the draft permit.

Table 1: Proposed Compliance Schedule for Constructing a New Treatment Facility

MILESTONE:	MILESTONE DATE:
1. Obtain Approval of Plans and Specifications	December 1, 2001
2. Award Project Construction Contract	June 1, 2002
3. Report on Construct Completed to Date	June 1, 2003
4. Complete Construction & Begin Initial Operation	June 1, 2004
5. Achieve Compliance with Final Limits	January 1, 2005

DISCHARGE OUTFALL:

Secondary treated and disinfected effluent is discharged from the facility via 36-inch outfall into the Chehalis River. The 36-inch reinforced concrete pipe extends approximately 300 feet from the secondary clarifier. The outfall is buried for the entire length and it emerges from the toe of the rock riprap slope on the east shore of the river. The effluent is discharged continuously through the submerged outfall located 20 feet offshore of the east bank under low flow conditions where the river depth is 12 feet. According to design drawings, the outfall is not equipped with a diffuser. The outfall terminates with a single 36-inch port that is oriented perpendicular to the river flow.

The permit application recognized that at some times there had been sanitary sewer overflows from the collection system at five distinct points. Upon discussion of this situation with the Permittee, it appeared that the Permittee had a high confidence level that they had corrected the conditions that led to these overflows and sewer overflows were not likely to recur. No alternate discharge point is authorized by this permit for purposes of a sanitary sewer overflow (see permit application for locations at which this had previously occurred). Any discharge from the collection system and/or treatment works at a point other than outfall #1 is a violation of the proposed permit.

The Permittee has committed to construct a new treatment plant at a downstream location as per their approved facility plan. Details of this plan are contained later in this fact sheet. This new facility will discharge at a downstream location. Since the exact coordinates of this outfall are not described in the permit application, the Permittee will have to request a permit modification to obtain authorization to discharge at that downstream location.

RESIDUAL SOLIDS:

The treatment facilities remove solid waste during the treatment of the wastewater at the headworks (grit and screenings), in addition to incidental solids (rags, scum, and other debris) removed as part of the routine maintenance of the equipment. The grit, rags, scum, and screenings are drained and disposed of as solid waste at the local solid waste transfer station. Sewerage sludges are removed at the primary and secondary clarifiers.

The plant incorporates primary and secondary anaerobic digesters to treat and a belt filter press to reduce the volume of sludges collected from the primary and secondary clarifiers. This enables beneficial use of sludges as a class B biosolids product ("biosolids" is a term applicable when they meet certain standards of 40 CFR part 503). The City of Centralia disposes of all the biosolids produced at its treatment plant by land application. Give-away programs to the public were curtailed when it was discovered that they did not have a Class A biosolids product. The City's preferred means of disposal is to have Sumas Co. remove and land

apply the product to a dry land wheat farm in Eastern Washington. For backup, the City has a contract with Bio-Recycling Corporation to haul biosolids off site for ultimate land disposal. Bio-Recycling utilizes farm land within Lewis County permitted by the Lewis County Health District for sludge disposal.

The Lewis County Health District requires monitoring of the sludge disposed on land within Lewis County as per the EPA 40 CFR Part 503 regulations (effective March 22, 1993). Biosolids applied to the land must meet risk-based pollutant limits specified in Part 503 (Table 1, Section 503.13). Operational standards to control disease-causing organisms called pathogens and to reduce the attraction of vectors (e.g., flies, mosquitoes, and other potential disease-causing organisms) to the biosolids must be met. In addition, there are general requirements, management practices, and frequency of monitoring, record keeping, and reporting requirements that must be met.

The City wastes an average of 300,000 gallons of primary and secondary sludge (at about a 0.5 percent solids content) per month. Following processing, this is reduced to 23 Metric tons (50,600 lbs solids) at 18 to 21 percent solids. There are eight covered sludge-drying beds at the plant site. Three of these have been converted to storage for the permeate of the belt filter press. Three others have been converted to use as dry product storage. Further drying of the product after the belt filter press is not required. The City can store approximately five months of product in these three bins.

Treatment plant sludge monitoring is required in this permit to determine if the plant is meeting applicable sludge (biosolids) disposal requirements. Since the WWTP is the generator of the sludge, it is appropriate that the NPDES permit for the WWTP include sludge quality monitoring. An annual frequency of monitoring is required based on the annual amount of sludge that is applied to land (> 0 and < 290 metric tons per year).

The City of Centralia began adding polyaluminum chlorohydrate in February 1998 as a coagulant to improve the Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS) removal performance of the POTW. This has been successful with marked improvements in removal percentages and effluent BOD5 and TSS concentrations.

PERMIT STATUS

The previous permit for this facility was issued on October 29, 1996. The previous permit placed effluent limitations on BOD_5, TSS, pH, Fecal Coliform bacteria, total residual chlorine and Ammonia (total as Nitrogen).

An application for permit renewal was submitted to the Department on December 28, 1999, and accepted by the Department.

SUMMARY OF COMPLIANCE WITH THE PREVIOUS PERMIT

The facility received its latest inspection on September 22, 2000. The Permittee has been successful in achieving disinfection and dechlorination requirements of the permit. Raw sewage bypasses or overflows have not been a problem within the collection system or plant other than during flood conditions.

The previous permit was issued on October 29, 1996, with an expiration date of June 30, 2000. That permit included terms and allowances of an EPA and Department settlement addressing noncompliance issue with the Permittee. The settlement memorialized acceptance of alternative effluent limits for the WWTP discharge based on the Permittee's proposed inflow and infiltration removal program.

The POTW was relieved from accomplishing this inflow and infiltration program until a new treatment works was constructed in consent decree C96-5968 RJB paragraph 4.C.(iii). That consent decree addressed final limits necessary for the Dissolved Oxygen TMDL and established that interim limits for percent removal would be as in the permit dated October 29, 1996. Alternative concentration limits, were not addressed. This permit considered whether they were necessary, and analyzed the 95th percentile performance for summer and winter seasons over the last six years. The resultant 95th percentile maximum concentration was 32 mg/L and 32.5 mg/L for BOD_5 and TSS respectively, and the limits were therefore retained.

In order to meet requirements for alternative removal rates because of less concentrated wastewater, the City must meet the conditions of WAC 173-221-050(b). Among these requirements is the requirement to submit an inflow and infiltration reduction plan that contains funding commitments, prioritization of I/I projects, and a schedule for completion. The program must be designed to ultimately achieve the goal of attaining the 85 percent removal requirement. When the new facility is completed, if relief from the 85 percent removal rate is required, plans addressing these conditions, including the I&I program, will have to be submitted and approved by the Department.

A review of the Discharge Monitoring Reports (DMRs) during the term of the previous permit (November 1996 to present) shows a significant decrease in the number of excursions from the effluent limitations. The Department's data system indicates there were 12 permit violations in just the last two months of 1996 (39 for that year in total), 28 violations in 1997, 8 violations in 1998, 3 violations in 1999, and no violations through September 2000.

Between September 2000 and the present, the City has not met ammonia concentration limits. Analysis of the situation has shown that total ammonia discharges to the river have decreased. The City has requested mass limits in lieu of concentration based limits. These have been calculated in this permit, and are proposed to remedy this situation while providing the most appropriate protections of the ambient environment until the new facility is constructed.

TABLE 2: Permit Limit Violations

PARAMETER	last 2 months of 1996	1997	1998	1999	2000 Thru 9/1	Total
BOD5, mg/L	2	0	0	0	0	2
BOD5, % Removal	2	2	0	0	0	4
BOD5, #/day[1]	4	7	1	0	0	12
TSS, mg/L	2	1	0	0	0	3
TSS, % Removal	1	3	1	0	0	5
TSS, #/day[1]	4	9	4	3	0	20
Chlorine	0	3	0	0	0	3
Fecal Coliform	1	3	0	0	0	4
Ammonia (as N)	0	0	2	0	0	2

Note 1 – BOD and TSS effluent loading limits in pounds per day reflect the loading that the facility will discharge to the river at the rated design flow and effluent concentration limit. Exceedances of these criteria are important in identifying when the facility is at or above its design flow rating. When such exceedances are not accompanied by concentration and/or removal rate violations for the same period, it indicates that the facility has surpassed its design loading, but it is otherwise still achieving secondary treatment standards. Because there is a margin of safety employed in design, this is not uncommon.

Review of the above data shows that design loading criteria were exceeded 32 times. While concentration limits were violated only 5 times, and minimum removal rate requirements 9 times, these parameters had already been adjusted to levels the POTW was expected to be able to met. Concentration limits in the previous permit were increased from what would be required under secondary standards, and removal rate requirements were lower than secondary standards (both relaxations of limits).

Current compliance is good, with no anticipated problems meeting the 30 mg/L BOD and TSS standards and 85 percent removal rate during the summer conditions if the groundwater table stays low.

WASTEWATER CHARACTERIZATION

The annual average discharge as described in the previous NPDES application is characterized for the following regulated parameters:

Table 3: Wastewater Characterization (Monthly Average Effluent Data or as Specified)

Parameter	Value
Flow	2.85 MGD Annual Ave, 6.06 MGD Max.
PH	6.9 S.U. Minimum; 7.3 S.U. Maximum.
Temperature	55^0F (12.8^0C) Min; 62^0F (16.7^0 C Max Winter) 68^0F (20^0C) Max.
Fecal Coliform	103 cfu / 100 mL (highest month)
BOD5	151 mg/L annual influent; 12 mg/L annual; 21 mg/L maximum.
Chlorine	0.00 mg/L
Ammonia	19.9 mg/L maximum; 11.7 mg/L annual average.
Dissolved Oxygen	9.0 mg/L annual average; 8.1 mg/L minimum
Total Susp. Solids	19 mg/L

Table 4: Historical Flow and Loading Data for the Centralia POTW:

	Five year average*: (1/90 to 12/94)	Five year average: (2/95 to 2/00)
Monthly average dry weather flow:	1.56 MGD	1.53 MGD
Monthly average wet weather flow:	2.93 MGD	3.62 MGD
Instantaneous peak flow:	6.85 MGD	6.69 MGD (over design 9 months)
BOD influent loading:	3,117 lbs/day	2,709 lbs/day (over design 1 month)
Max. month BOD loading		4,390 lbs/day max. month
TSS influent loading:	2,710 lbs/day	2,946 lbs/day (over design 5 months)
Max. month TSS loading		6,067 lbs/day max month

* Based upon information in the companion permit fact sheet for the 1996 permit issuance.

SEPA COMPLIANCE

The Department of Ecology Water Quality Program received a draft Environmental Impact Statement for the subject project for the new facility construction on October 13, 1999. The City issued a Final Environmental Impact Statement on December 15, 1999. On February 29, 2000, the city issued a Notice of Action on the project. The wastewater facilities plan Appendixes dated January 2000 also included, at Appendix F, the Washington State Water Pollution Control Fund (SRF) Environmental Checklist. Needs identified by the Department on June 9, 2000, included an archaeological and historic resources survey as identified in the EIS for Alternative C and pressure sewer line projects, and a farmland determination if Alternative site C is chosen.

The Department received a General Sewer Plan on February 9, 2000, which included a State Environmental Policy Act (SEPA) checklist at Appendix D, and a determination of Non-Significance from the City. The determination of non-significance was from May 1999 and was for the General Sewer Plan as a planning document as explained in Chapter 9 of the General Sewer Plan.

PROPOSED PERMIT LIMITATIONS

Federal and state regulations require that effluent limitations set forth in a NPDES permit must be either technology- or water quality-based. Technology-based limitations for municipal discharges are set by regulation (40 CFR 133, and Chapters 173-220 and 173-221 WAC). Water quality-based limitations are based upon compliance with the Surface Water Quality Standards (Chapter 173-201A WAC), Ground Water Standards (Chapter 173-200 WAC), Sediment Quality Standards (Chapter 173-204 WAC) or the National Toxics Rule (Federal Register, Volume 57, No. 246, Tuesday, December 22, 1992.) The most stringent of these types of limits must be chosen for each of the parameters of concern. Each of these types of limits is described in more detail below.

The limits in this permit are based in part on information received in the application. The effluent constituents in the application were evaluated on a technology- and water quality-basis. The limits necessary to meet the rules and regulations of the state of Washington were determined and included in this permit. The Department does not develop effluent limits for all pollutants that may be reported on the application as present in the effluent**.** Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation**.** Effluent limits are not always developed for pollutants that may be in the discharge but not reported as present in the application. In those circumstances the permit does not authorize discharge of the non-reported pollutants. Effluent discharge conditions may change from the conditions reported in the permit application. If significant changes occur in any constituent, as described in 40 CFR 122.42(a), the Permittee is required to notify the Department. The Permittee may be in violation of the permit until the permit is modified to reflect additional discharge of pollutants.

DESIGN CRITERIA

In accordance with WAC 173-220-150 (1)(g), flows or waste loadings shall not exceed approved design criteria. The design criteria for the present treatment facility are taken from the previous NPDES permit for this facility.

The design criteria for Phase 1 of the new treatment works are derived from Table 5-1 “Process Sizing Criteria for Recommended Alternative” of the approved facility plan dated January 2000. The facility being constructed is intended to be able to accommodate year 2005 flows and loadings. The Department

recognizes a BOD_5 loading capacity based on the following information from that report. The stated design standard of 19.3 lb BOD_5 per 1,000 cubic feet of aerated volume; two 0.9 MG basins; and no primary clarification. The plans call for an anoxic zone in each aeration basin, and the Department presumed in this analysis a ratio of 90 percent aerated volume per aeration basin (ten percent anoxic zone) which yields 216,560 cubic feet of aerated volume. This yields 4,180 lbs/day of BOD capacity. *Wastewater Engineering, Treatment Disposal Reuse*, 3ed Metcalf and Eddy confirms that single pass nitrification should be operated in the range of 5-20 lb BOD_5 per 1,000 cubic feet of aerated volume. This demonstrates that this criteria is not overly conservative.

For TSS, the wastewater is presumed to have similar BOD and TSS loadings, and therefore, the same loading capacity is authorized. For maximum monthly flow, the stated MMA design criteria for the secondary clarifier of 23.2 lbs/day*sf limit yields a maximum monthly flow rate of 5.3 MGD (based on given 2,590 mg/L MLSS, 7,000 mg/L RAS, 57 percent recycle rate, 7,700 sf secondary clarifier surface area, and 23.2 lbs/day*sf loading rate).

Table 5: Design Standards for Centralia WWTP.

Parameter	Present Design Quantity	Phase 1 part 1, as Approved
Maximum monthly average flow	4.3 MGD	5.3 MGD
Monthly average dry weather flow	2.0 MGD	----------
Annual average flow rate	----------	3.4 MGD
Instantaneous peak flow	6.1 MGD	9.24 MGD
BOD_5 influent loading (MMA)	3660 lbs/day	4180 lbs/day
TSS influent loading	3660 lbs/day	4180 lbs/day

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

Municipal wastewater treatment plants are a category of discharger for which technology-based effluent limits have been promulgated by federal and state regulations. These effluent limitations are given in the Code of Federal Regulations (CFR) 40 CFR Part 133 (federal) and in Chapter 173-221 WAC (state). These regulations are performance standards that constitute all known available and reasonable methods of prevention, control, and treatment for municipal wastewater.

The following technology-based limits for pH, fecal coliform, BOD_5, and TSS are taken from Chapter 173-221 WAC are:

Table 6: Technology-based Limits.

Parameter	Limit
pH:	shall be within the range of 6 to 9 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD_5 (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

Parameter	Limit
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

However, the current facility is a trickling filter process in operation prior to 1984 that has not been significantly modified since. Therefore, it qualifies for less stringent BOD and TSS concentration and removal rates as allowed under WAC 173-221-050(1). The adjusted limits may not violate anti-backsliding provisions of the Clean Water Act and may not be less stringent than those effluent limits consistently achievable through proper operation and maintenance of the wastewater facility based upon past performance, the design, and design capacity of the facility.

In this instance, the Permittee's permit issued October 29, 1996 contains Summer limits (May-October) of 35 mg/L for BOD and TSS (52 mg/L as a weekly maximum). The fact sheet supporting that 1996 permit notes that the permit issued in August 8, 1991, contained limits of 30 mg/L for BOD and TSS. The Permittee was initially presumed to be able to again meet the 30 mg/L (monthly average) BOD and TSS limits during the summer based on the last two years of data. Further analysis shows that the 95th percentile performance for BOD5 and TSS during the summer is 32.4 mg/L & 32.0 mg/L (1/95 – 2/00). Therefore, the current performance based limits of a maximum monthly average concentration of 35 mg/L (52 mg/L as a weekly average) were retained.

Removal rates requirements of the previous permit were 85 percent for BOD_5 and 80 percent for TSS in the summer. Winter removal rates required of the last permit were 75 percent for BOD and 70 percent for TSS. These exceptions to secondary treatment requirements for 85 percent removal were granted under provisions of the trickling filter alternative limits section [reference WAC 173-221-050(1)]. These variances to the removal rate requirements continue to be reflected in this permit.

For chlorine; the existing permit has summer chlorine limits of 0.031 mg/L (daily) and 0.015 mg/L (monthly average) based upon compliance with the more stringent of water quality and technology based limits. Winter (November through April) limits for chlorine have been 0.032 mg/L (daily) and 0.016 mg/L (monthly average). The facility has been able to comply with these limits, and the proposed permit therefore includes the same limits.

Based on WAC 173-220-130(3)(b) and 173-221-030(11)(b). Effluent limits and capacity were converted to maximum allowable effluent mass loadings (lbs/day) as follows:

> BOD_5 SUMMER: The current treatment process is recognized as having a design influent BOD_5 loading capacity of 3,660 lbs/day. In Summer (May through October) the POTW is required to achieve 85 percent removal for BOD_5. This equates to an allowable effluent BOD_5 loading is 549 lbs/day (15 percent of 3,660 lbs/day). The maximum monthly average design flow for the summer is 2.0 MGD, which equates to an authorized loading of 2.0*35mg/L*8.34lb/gal = 583 lb. The limiting criteria 550 lbs/day establishes the current allowable summer BOD_5 effluent mass limit.
>
> For the proposed new facility, the average monthly design influent BOD_5 loading is 4,180 lbs/day per the approved Engineering Report. Meeting 85 percent removal would result in discharge of up to 627 lbs/day as a monthly average. At the Maximum "Dry Weather" DAILY flow rate of 3.7 MGD and at the BOD_5 monthly average effluent limit for the new facility of 20 mg/L, discharge of 617 lbs/day would be authorized. Therefore the limiting criterion for effluent BOD_5 loading for the new plant in dry weather (final limit) is 617 lbs/day. This criterion applies to monthly average

effluent loadings during periods that meet the definition of "Dry Weather" per the flow based decision rule in Consent Decree C96-5968 RJB paragraph 4(A.). (Note – An equivalent maximum monthly average flow that corresponds to the maximum dry weather daily flow limit of 3.7 MGD would more properly be used in this calculation, and may be determined in the next permitting cycle).

The Consent Decree also establishes maximum daily effluent loading limits for BOD in Dry Weather of 926 lbs/day, and 826 lbs/day when Centralia Reach flows are below 200 cfs.

BOD WINTER: The current treatment process is recognized as having a design influent BOD_5 loading capacity of 3,660 lbs/day in the winter. Interim standards for the current facility require 75 percent BOD_5 removal in winter. This equates to an allowable effluent BOD_5 loading of 915 lbs/day (25 percent of 3,660 lbs/day). The maximum monthly average design flow (4.30 mgd) x concentration limit (30.0 mg/L) x 8.34 (conversion factor) = mass limit (1075 lbs/day). The limiting criteria of 915 lbs/day establishes the allowable winter BOD_5 loading.

For the new facility, the rated capacity is 4,180 lbs/day and 85 percent removal is required for the high flow condition. Meeting this removal rate at maximum authorized headworks loading would result in an effluent mass discharge of 627 lbs/day. Meeting the concentration based effluent limit of 30 mg/L at the proposed facility's maximum monthly flow rating of 5.3 MGD would result in an effluent loading of 1,326 lbs/day. The limiting criteria, (627 lbs/day) establishes the maximum allowable effluent mass loading for BOD_5 for the new facility for periods when wet weather limits (per the consent decree) apply.

TSS SUMMER: The current treatment process has a design influent TSS rating of 3,660 lbs/day. In the Summer (May through October) the POTW is required to remove 80 percent of TSS. Therefore, the allowable effluent TSS loading would be 732 lbs/day (20 percent of 3,660). The maximum monthly average design flow for the summer is 2.0 MGD, which equates to an authorized loading of 2.0*35mg/L*8.34lb/gal = 584 lb. The limiting criteria of 584 lbs/day establishes the allowable summer TSS loading.

For the new facility, the approved design will accommodate a headworks loading of 4,180 lbs/day of TSS. At 85 percent removal, this result in 627 lbs/day of TSS in the effluent. At the Maximum DAILY "Dry Weather" flow rate of 3.7 MGD at the effluent limit of 20 mg/L, discharge of 617 lbs/day would be authorized. Therefore, the limiting criterion for TSS for the new plant in dry weather is 617 lbs/day. (Note – An equivalent maximum monthly average flow that corresponds to the maximum daily flow limit of 3.7 MGD would more properly be used in this calculation, and may be determined in the next permitting cycle).

TSS WINTER: The current treatment process is rated for an influent TSS loading of 3660 lbs/day. In the Winter (November through April) the POTW is required to achieve 70 percent removal for BOD. Therefore, the allowable effluent TSS loading would be 1,098 lbs/day (30 percent of 3660). The maximum monthly average design flow for the summer is 4.3 MGD, which equates to an authorized loading of 4.3*35mg/L*8.34lb/gal = 1,255 lb. The limiting criteria (1,098 lbs/day) establishes the allowable winter TSS loading.

Final limits for the new facility presently require 85 percent removal for wet weather condition unless and until the requirements of WAC 173-221-050 are met and dictate a lower percentage removal requirement. The approved rated capacity for the proposed facility is 4,180 lbs/day. This capacity and 85 percent removal yields an effluent mass limit of 627 lbs/day. At 30 mg/L and at the

rated maximum monthly flow capacity of 5.3 MGD, an effluent loading would be 1,326 lbs/day. The more restrictive limit, (currently 627 lbs/day) applies.

Weekly average effluent mass loadings equal 1.5 times the monthly loading in all four above cases.

Table 7 – Effluent Loading Limits Based on Technology: Existing & New POTWs

	Summer		Winter	
Existing POTW:	**Max Week**	**Max Month**	**Max Week**	**Max Month**
BOD_5	750 lbs/day	500 lbs/day	1,372 lbs/day	915 lbs/day
TSS	750 lbs/day	500 lbs/day	1,647 lbs/day	1,098 lbs/day
New POTW:	**Max Day**	**Max Month**	**Max Week**	**Max Month**
BOD5	926 lbs/day	617 lbs/day	941 lbs/day	627 lbs/day
TSS	926 lbs/day	617 lbs/day	941 lbs/day	627 lbs/day

SURFACE WATER QUALITY-BASED EFFLUENT LIMITATIONS

In order to protect existing water quality and preserve the designated beneficial uses of Washington's surface waters, WAC 173-201A-060 states that waste discharge permits shall be conditioned such that the discharge will meet established Surface Water Quality Standards. The Washington State Surface Water Quality Standards (Chapter 173-201A WAC) is a state regulation designed to protect the beneficial uses of surface waters of the state. Water quality-based effluent limitations may be based on an individual waste load allocation (WLA) or on a WLA developed during a basin-wide TMDL.

A TMDL includes limits on the amount of pollutants that the waterbody receives from all sources. TMDLs differ from technology or water quality based numeric limits for discharges because they consider the total amounts of a pollutant a waterbody can receive from all sources and still maintain compliance with Water Quality Standards.

Beginning in 1991, the upper Chehalis River basin from the headwaters to Porter was studied by the Department to establish a TMDL for pollutants of concern. Water quality data was collected from July to October 1991 and May to September 1992 for the river parameters of concern and to allocate the load among the dischargers.

In July 1993, the Department introduced the watershed approach as a new way of protecting water quality. The watershed approach uses a geographic based five-year cycle for scheduling and coordinating the issuance of wastewater discharge permits and other source controls with water quality assessments required by the Clean Water Act. The Upper Chehalis Basin is now entering the fifth year of the watershed management cycle, a key element of which is using TMDLs to control pollution.

The TMDL data for the Upper Chehalis River Dry Season Study was collected from July 1991 to April 1993 from stations on the mainstem Chehalis River and from tributaries, point sources, and other loading sources. The mainstem Chehalis River in the study area can be divided into three reaches that exhibit distinct physiographic features. The upper reach of the study area [above the town of Pe Ell to State Route (SR) 6 bridge at RM 74.9] has mixed features of riffles, swift glides, and occasional deeper pools. The middle reach (SR 6 to the confluence of the Skookumchuck River at RM 66.9) is a stretch of slow, relatively deep water referred to as the Centralia Reach. The lower reach (Skookumchuck River to Porter at RM 33.8) is much swifter, again exhibiting a riffle/glide/pool character.

The corresponding river segments for the Upper, Middle, and Lower Chehalis River are:

WA-23-1100 – Chehalis River from Newaukum River (RM 75.2) to Rock Creek (RM 106.7).
WA-23-1020 – Chehalis River from Scammon Creek (RM 65.8) to Newaukum River (RM 75.2).
WA-23-1010 – Chehalis River from Porter Creek (RM 33.3) to Scammon Creek (RM 65.8).

The following TMDL findings were determined for the Centralia Reach of the Chehalis River (WA-23-1020):

The Centralia Reach is characterized by high temperatures near the water surface and low dissolved oxygen in deeper waters. Dissolved oxygen (DO) levels during the critical season fall below Class A standards even in the absence of human-caused pollutants. The DO standard for this stretch is therefore lower than would normally be required of Class A waters. The standard is 5.0 mg/L from June 1 to September 15 and Class A (8.0 mg/L) the rest of the year [See 173-201A-130(9)]. Even at this reduced standard, the Centralia Reach does not meet the water quality criteria for DO under critical conditions. The reach is very sensitive to any loading, and the Department modeling predicts significant DO degradation (0.2 mg/L or more) with even small additions of ammonia and BOD loading above background.

Loading capacity (BOD_5 and ammonia) in the upper end of the Centralia Reach is, therefore, severely limited. The Department's findings were that during the critical season no point or non-point source loading above background could be allowed in the Centralia Reach. TMDLs have been established for ammonia and Biochemical Oxygen Demand (BOD_5) for the Chehalis River between Pe Ell and Porter. These standards were memorialized in Consent Decree No. C96-5968 RJB, United States District Court, Western District of Washington at Tacoma signed January 14, 2000 (hereafter "Consent Decree"). Limits based upon the restrictions of the TMDL. The modified TMDL was submitted to EPA, and approved for implementation. The Centralia WWTP currently discharges just below the Mellen Street bridge. Under the Consent Decree, the City of Centralia is required to discharge downstream of the Centralia Reach, below the mouth of the Skookumchuck River and meet the following final effluent limitations within eight years of the signing of the Consent Decree (at latest by January 14, 2008):

Table 8: Effluent Limits Specified by the Consent Decree

I: Dry Weather – River flows are between 200 cfs (daily) and 1000 cfs (7-day average)			
Parameter:	**Rate or Concentration**	**Mass (Maximum day)**	**Removal Rate**
BOD5 & TSS	Monthly Ave = 20 mg/L; Daily Max = 30 mg/L;	926 lbs/day	Minimum 85%
Ammonia	Daily max. 3/15 – 11/30 = 4.0 mg/L & 15 mg/L in December	3/15 - 11/30 = 123 lbs/day 12/1 - 12/31 = 463 lbs/day.	
Flow	Daily max = 3.7 MGD		
II: Dry Weather – Daily Centralia Reach flow is below 200 cfs (daily measurement)			
Parameter:	**Rate or Concentration**	**Mass (Maximum day)**	**Removal Rate**
BOD5 & TSS	Monthly Ave = 20 mg/L; Daily Max = 30 mg/L;	826 lbs/day	Minimum 85%
Ammonia	Daily max 3/15 – 11/30 = 4.0 mg/L & 15 mg/L in December	3/15 - 11/30 = 110 lbs/day 12/1 - 12/31 = 463 lbs/day.	
Flow	Daily max. = 3.3 MGD		
III: Wet Weather – River flows above 1000 cfs (7-day average) with one day >2,500 cfs			
Parameter:	**Rate or Concentration**	**Mass (Maximum day)**	**Removal Rate**

BOD5 & TSS	Monthly Ave. = 30 mg/L; Daily Max. = 45 mg/L	2,530 lbs/day	Minimum 85% or as per WAC 173-221-050
Ammonia	Daily max. = 15 mg/L	657 lbs/day	
Flow	Daily max. = 10.3 MGD		

Dry weather limits for BOD, TSS, and effluent flow apply on the next day after the seven-day moving average goes below 1,000 cfs, and on all subsequent days until the wet weather limits apply. For ammonia, dry weather limits are effective 14 days later, but not before March 1 of any calendar year.

For the limits applicable at river flows of 200 cfs or less, daily flows shall be used and direct measurements of 300 cfs at the Grand Mound gage shall be considered equivalent to 200 cfs in the Centralia Reach. (Note: For future discharges below the Centralia Reach, flows estimates must ensure to remember to include the contribution of the Skookumchuck river).

Wet Weather limits apply on the next day after the 7-day moving average flow is greater than 1,000 cfs and the daily flow of the Centralia Reach has been greater than 2,500 cfs during at least one day of the preceding seven days.

No nonpoint source Load Allocation (LA) is provided for in the TMDL. This applies to: livestock impacts on the mainstem and on Salzer and Dillenbaugh Creeks and their tributaries; activities that affect ground water quality where the Chehalis River or its tributaries are downgradient; stormwater runoff from urban areas, clean-up sites, and agricultural activities; poor waste handling activities that result in the discharge of waste to the Centralia Reach or its tributaries.

The Centralia wastewater treatment plant (WWTP) is located in the Centralia Reach and is limited by these water quality wasteload allocations of this TMDL.

The temperature standard for the Chehalis River in the area of the discharge is 18 degrees C. Monitoring data has shown that this temperature is often exceeded in the Chehalis River during the critical season. In response to this, the Department has proposed a temperature TMDL. While not finalized, it may be noted at this juncture that the temperature TMDL has the potential to further limit the quantity of thermal pollutants discharged by the POTW. The proposed permit contains additional monitoring and analysis by the Permittee to assess thermal effects and options. This is further discussed on page 25.

The Department needs results of monitoring of both effluent and river temperatures to determine whether the POTW has a reasonable potential to exceed water quality standards. Because both temperatures fluctuate over the day, average temperatures of the effluent and stream are sought. The Department also needs an analysis of various options that might reasonably be employed to reduce thermal loadings of the POTW. This will establish which (if any) solutions are cost effective and viable if thermal loading reductions are found to be required. The Department hopes that the data thus provided will allow for the more rigorous analysis of whether thermal discharges from the POTW have an impact on the receiving waters, and the cost of compliance with potential thermal requirements as may arise from the work in progress. Specific technologies to be evaluated include the costs and estimated benefits of the following and any other technologies, which appear to merit consideration:

1. Addition of an inter-cooler for the compressed air line between the blowers and the air distribution system.
2. Addition of covers (such as raised, vented, or insulated) for wastewater treatment components
3. Use of an area potable water misting system
4. Addition of a cooling tower or “swamp cooler” type system.

NUMERICAL CRITERIA FOR THE PROTECTION OF AQUATIC LIFE

"Numerical" water quality criteria are numerical values set forth in the state of Washington's Water Quality Standards for Surface Waters (Chapter 173-201A WAC). They specify the levels of pollutants allowed in a receiving water while remaining protective of aquatic life. Numerical criteria set forth in the Water Quality Standards are used along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limitations, they must be used in a permit.

NUMERICAL CRITERIA FOR THE PROTECTION OF HUMAN HEALTH

The state was issued 91 numeric water quality criteria for the protection of human health by the U.S. EPA (EPA 1992). These criteria are designed to protect humans from cancer and other disease and are primarily applicable to fish and shellfish consumption and drinking water from surface waters.

The Department has determined that the applicant's discharge is undergoing technology-based upgrades based on a Department order or permit, and thus should be regulated for human health based criteria only after upgrades are completed. The discharge will be re-evaluated for impacts to human health at the next permit reissuance.

NARRATIVE CRITERIA

In addition to numerical criteria, "narrative" water quality criteria (WAC 173-201A-030) limit toxic, radioactive, or deleterious material concentrations below those which have the potential to adversely affect characteristic water uses, cause acute or chronic toxicity to biota, impair aesthetic values, or adversely affect human health. Narrative criteria protect the specific beneficial uses of all fresh (WAC 173-201A-130) and marine (WAC 173-201A-140) waters in the state of Washington.

ANTIDEGRADATION

The state of Washington's Antidegradation Policy requires that discharges into a receiving water shall not further degrade the existing water quality of the water body. In cases where the natural conditions of a receiving water are of lower quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. Similarly, when the natural conditions of a receiving water are of higher quality than the criteria assigned, the natural conditions shall constitute the water quality criteria. More information on the State Antidegradation Policy can be obtained by referring to WAC 173-201A-070.

The Department has reviewed existing records and ambient water quality is lower than the designated classification criteria given in Chapter 173-201A WAC. The discharge authorized by this proposed permit has been found to contribute to a loss of beneficial uses. The Department has entered into a consent decree to terminate the discharge at this location, and therefore, rectify this situation. This consent decree was entered into by the Cities of Chehalis, Centralia, and Darigold, Inc. and the Department of Ecology on October 14, 1998, and entered by the courts on January 14, 2000. The consent decree provides a period of not more than eight years from the date of this agreement to achieve final effluent limitations.

CRITICAL CONDITIONS

Surface water quality-based limits are derived for the waterbody's critical condition, which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota, human health, and existing or characteristic water body uses.

MIXING ZONES

The Water Quality Standards allow the Department to authorize mixing zones around a point of discharge in establishing surface water quality-based effluent limits. Both "acute" and "chronic" mixing zones may be authorized for pollutants that can have a toxic effect on the aquatic environment near the point of discharge. The concentration of pollutants at the boundary of these mixing zones may not exceed the numerical criteria for that type of zone. Mixing zones can only be authorized for discharges that are receiving all known, available, and reasonable methods of prevention, control and treatment (AKART) and in accordance with other mixing zone requirements of WAC 173-201A-100.

The National Toxics Rule (EPA, 1992) allows the chronic mixing zone to be used to meet human health criteria.

Because of the reasonable potential for pollutants in the proposed discharge to exceed water quality criteria, mixing zones may be authorized. These zones will accommodate the geometric configuration and flow restriction for mixing zones in Chapter 173-201A WAC and are defined as follows:

> (i) Not extend in a downstream direction for a distance from the discharge port greater than three hundred feet plus the depth of water over the discharge port, or extend upstream for a distance of over one hundred feet;
>
> (ii) Not utilize greater than twenty-five percent of the flow; and
>
> (iii) Not occupy greater than twenty-five percent of the width of the water body.

The Water Quality Standards (WAC 173-201A-020) specify that "critical conditions may be assumed to be equal to the 7Q10 flow event" for the standards compliance, "unless determined otherwise by the department." Because the Centralia Reach of the Chehalis River between the Newaukum and the Skookumchuck Rivers is ungaged, use of a 7Q10 for critical flow conditions in this stretch was not feasible. In addition, this stretch of the river is governed by a special condition that creates two separate DO criteria for semiannual periods and, therefore, critical flow conditions must be separately defined for each of the two semiannual periods.

DESCRIPTION OF THE RECEIVING WATER

The facility discharges to the Chehalis River, which is designated as a Class A Freshwater receiving water in the vicinity of the outfall with a special temperature criterion. The Chehalis River from Scammon Creek (river mile 65.3) to Newaukum River (river mile 75.2) - dissolved oxygen shall exceed 5.0 mg/L from June 1 to September 15. For the remainder of the year, the dissolved oxygen shall meet Class A criteria (8.0 mg/L). Other nearby point source outfalls include Westfarm Foods and the City of Chehalis. Characteristic uses include the following:

> Water supply (domestic, industrial, agricultural); stock watering; fish migration; fish and shellfish rearing, spawning and harvesting; wildlife habitat; primary contact recreation; sport fishing; boating and aesthetic enjoyment; commerce and navigation. Water quality of this class shall meet or exceed the requirements for all or substantially all uses.

The Chehalis River in the vicinity of Centralia has historically been an area of concern. The slow-moving characteristics of the river in this area and the existence of holes up to 30 feet deep create phenomena more typically associated with lakes and impoundments. A 1982 Department survey showed mean river

velocities between 0.4 and 0.1 ft/sec, well below the 0.6 ft/sec velocity necessary to prevent in-stream settling of solids.

Surveys have shown thermal stratification and decreases in oxygen concentrations during the mid-summer period. Depressed oxygen concentrations have chronically occurred in the late summer and early fall during low-flow periods. Also, the water has been able to support substantial algal blooms. Below the WWTP, the Department survey data (Yake, 1980; Johnson and Prescott, 1982) indicated a nitrogen-limited system. The 1982 Water Quality Survey suggest that biochemical oxygen demand, five day (BOD_5) and nitrogenous oxygen demand (NOD) loads from the Centralia WWTP have only a small direct impact on dissolved oxygen (DO) depletion, but that the discharge may also indirectly affect DO through sediment and nutrient loadings.

A number of groups in the Chehalis River basin are engaged in water quality activities. The Chehalis Basin Partnership was formed to coordinate efforts to improve water quality; manage water resources to provide ample supplies for farms, fish industry and people; reduce the effects of flooding; increase recreational opportunities; and increase watershed awareness through education. After 90.82 RCW (the Watershed Planning Act) was passed, the Chehalis Basin Partnership assumed the role as the "Local Planning Unit" responsible for evaluating current water use and developing a plan to endure adequate quantities of water for people and fish. The Chehalis Basin Partnership has members that represent a wide cross-section of interests within the basin including local and state government, tribes, environmental groups, and local citizens.

The Chehalis River Council (CRC) is a non-profit corporation that was formed in 1994 to lead the implementation of the Chehalis River Basin Action Plan. This plan is designed to improve water quality throughout the basin by addressing non-point sources of pollution. The CRC publishes a newspaper insert called "Drops of Water" that reaches over 40,000 watershed residents. It also sponsors a variety of voluntary activities aimed a cleaning up the water and educating the public about water quality. Its "Shade the Chehalis" program is designed to reverse degradation of riparian zones throughout the basin that have contributed to increased sedimentation, changes in channel shape, erosion, and elevated water temperatures.

The U.S. Fish and Wildlife Service (USFWS) is implementing the Chehalis River Basin Fishery Resources Study and Restoration Act of 1990. The USFWS will annually be awarding grant funds for habitat improvement, which should be an important source of funding for nonpoint source controls.

Also active in water quality issues in the Chehalis River basin is the Confederated Tribes of the Chehalis Reservation (Chehalis Tribe). The Chehalis Tribe has received grant money from USFWS for fishery improvement projects and is beginning a water quality monitoring program on the Chehalis River as a follow-up to the work done in this study.

The flow data produced for the TMDL determined that the May through October 7Q10 yearly flow (68.1 cfs) is equivalent to the 7Q20 seasonal flow statistic for the Centralia Reach of the Chehalis River. The November through April 7Q20 seasonal flow equals 218.6 cfs. The critical receiving water parameters are: temperature = 22.6 ^{o}C, pH = 7.90, hardness = 50 mg/L (as calcium carbonate).

SURFACE WATER QUALITY CRITERIA

Applicable criteria are defined in Chapter 173-201A WAC for aquatic biota. In addition, U.S. EPA has promulgated human health criteria for toxic pollutants (EPA 1992). Criteria for this discharge are summarized below:

TABLE 8: Water Quality Standards for the Receiving Waters:

Fecal Coliforms	100 organisms/100 mL maximum geometric mean
Dissolved Oxygen	8 mg/L minimum; 5.0 mg/L between 6/1 to 9/15
Temperature	18 degrees Celsius maximum or incremental increases above background
PH	6.5 to 8.5 standard units
Turbidity	Less than 5 NTUs above background
Toxics	No toxics in toxic amounts (see Appendix C for numeric criteria for toxics of concern for this discharge)

CONSIDERATION OF SURFACE WQ-BASED LIMITS FOR NUMERIC CRITERIA

Pollutant concentrations in the proposed discharge exceed water quality (WQ) criteria with technology-based controls which the Department has determined to be AKART. A mixing zone is authorized in accordance with the geometric configuration, flow restriction, and other restrictions for mixing zones in Chapter 173-201A WAC and are defined as follows:

The dilution factors of effluent to receiving water that occur within these zones were determined in the previous permit action, and were not recalculated as part of this re-permitting action. Those as follows:

> Chronic Zone. (May through October) -- The most restrictive parameter for the mixing zone allowable under WAC 173-201A-100 occurs at the boundary of 25 percent of the 185-foot river width. The effluent mixing study (December 1992) provided the actual field measurement of the dilution factor at the chronic boundary for the TMDL period at 4.0.
>
> (November through April) -- The restrictive parameters for the dilution model results were compared with dilution ratios calculated for 25 percent of the flow and an estimate at 25 percent of the boundary width. The critical plant flow for chronic conditions is the wet weather design flow 4.3 MGD. The resulting critical dilution factor is 6.8 (model at 10.3 and 25 percent flow at 9.2)
>
> Acute Zone. (May through October) -- The most restrictive parameter for the mixing zone allowable under WAC 173-201A-100 is 2.5 percent of the 7Q10 flow. The critical plant flow for acute conditions is the dry weather design flow times a peaking factor. The peaking factor is the ratio of peak daily flow to average monthly flow (2.66 MGD). Using the 7Q10 flow from the TMDL of 65.3 CFS results in a dilution ratio of 0.40:1; the dilution factor used to establish permit limits is therefore 1.40.
>
> (November through April) -- The critical parameter for the wet weather (7Q20) low flow of 218.6 cfs occurs at 2.5 percent of the flow. The dilution factor is 1.67.

The dilution factors of effluent to receiving water that occur within these zones have been determined to be within the actual mixing that should occur at critical condition by the use of the UM model in the 3PLUMES interface. The dilution factors for the current discharge location have been determined to be:

TABLE 9: Mixing Zone Ratios for the Current Outfall Location

For Current Discharge Location	Acute	Chronic
Aquatic Life	1.4:1 (summer)	4.0:1 (summer)
	1.67:1(winter)	6.8:1 (winter)
Human Health, Carcinogen	N/A	6.8:1
Human Health, Non-carcinogen	N/A	4.0:1

For the New Outfall Location – Reference Appendix E of Appendixes to the January 2000 Wastewater Treatment Plant Facilities Plan for the City of Centralia (Facilities Plan) for the river width and flows at the 7Q10 situation for the river at the new outfall location. Reference the draft permit or Consent Decree C96-5986 RJB as Ordered 14 January 2000 (Consent Decree), in section V, paragraph 4 for the definitions of when "dry weather" limits and "wet weather" limits apply.

Chronic Zone. During periods when "Dry Weather" limits apply -- The most restrictive parameter for the mixing zone allowable under WAC 173-201A-100 occurs at the boundary of 25 percent of the 200-foot river width. The Consent Decree establishes maximum dry weather flow as 3.3 MGD (5.1 cfs) during this season, and using the 7Q10 flow of 114 cfs established in the Facilities Plan yields a chronic mixing zone ratio of [(5.1+.25*114)/5.1) or ((5.1+28.5)/5.1] or 6.6:1.

During periods when "Wet Weather" limits apply -- The restrictive parameters for the dilution model results were compared with dilution ratios calculated for 25 percent of the river flow. The facilities plan (p.3-7) estimates 2025 maximum weekly flows at 8.4 MGD (13.0 cfs). The threshold 7-day average river flow is 1000 cfs. These numbers can be compared directly resulting critical dilution factor of [(13+(.25*1000)]/13 or (13+250)/13 or 20.2:1. Without additional data correlating river and POTW flows could, the Department cannot be less conservative.

Acute Zone. During periods when "Dry Weather" limits apply -- The most restrictive parameter for the mixing zone allowable under WAC 173-201A-100 is 2.5 percent of the 7Q10 flow. The critical plant flow for acute conditions is taken as the limiting day flow of 3.3 MGD (5.1 CFS). Using the 7Q10 flow from this appendix as 114 CFS results in a dilution factor of {(5.1+(.025*114))/5.1} or (5.1+2.85)/5.1 or 1.60:1.

During periods when "Wet Weather" limits apply -- The restrictive parameters for the dilution model results were compared with dilution ratios calculated for 2.5 percent of the river flow. The critical plant flow for chronic conditions had to be presumed. While maximum daily flows during wet weather are limited to 10.5 MGD by the consent decree, the facilities plan (p.3-7) estimates 2025 peak flows of 9.3 MGD. Applying the Department's Criteria for Sewage Works Design standard of 1,200 gpd/sf maximum to the plant to be constructed (7,700 sf of clarifier area) yields a maximum recognized daily flow capacity of 9.24 MGD. Using 9.24 MGD (14.3 CFS) and 1,000 CFS as the river flow yields a mixing zone ratio of 2.75:1. However peak flows at the threshold average river flow at which the standards apply may not be the most limiting condition. Another estimation would be to presume the maximum allowable summer flow (3.7 MGD or 5.73 cfs by the Consent Decree) would occur at this time. Our estimation for this permitting action is that river flows on a daily basis could be as low as 400 cfs during the period when the seven-day average flow in the river was at 1,000cfs. This yields a mixing zone ratio of [(5.73+.025*400)/5.73] or [(5.73+10)/5.73] or 2.75:1.

The Department welcomes any additional data the Permittee wishes to provide on appropriate critical river flows. We also welcome the Permittee's estimation of the 95th percentile effluent flow commensurate with the critical river flows for both dry and wet weather seasons. As of the writing of this permit, this is our best estimate of the mixing zone ratios that can be expected with the data at hand. Modeling provided in Appendix E to the facilities plan seems to support a 1.6:1 and 6:1 summer mixing zone ratio, and is equivalent to the below proposal when normalized to the flow limits of the consent decree. That analysis did not attempt to determine the winter mixing zone ratios, but had it, it would have been of marginal utility for the new facility. Presumptions for critical river and effluent flows for the new facility must be done under the flow based rule. This is significantly different than critical conditions under the present calendar based "winter" limits.

TABLE 10: Preliminary Mixing Zone Ratios for the New Outfall Location – at Phase 1 Design Flows

Proposed New Discharge Location	Acute	Chronic
Aquatic Life	1.6:1 (summer)	6.6:1 (summer)
	2.75:1 (winter)	20.2:1 (winter)
Human Health, Carcinogen	N/A	20.2:1
Human Health, Non-carcinogen	N/A	6.6:1

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as BOD is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

The derivation of water quality-based limits also takes into account the variability of the pollutant concentrations in both the effluent and the receiving water.

The critical condition for the Chehalis River is the seven-day average low river flow with a recurrence interval of ten years (7Q10). Ambient data at critical conditions in the vicinity of the Mellen Street Bridge outfall was taken from the TMDL study which considered both historical data and an intensive monitoring study conducted in September-October 1990. The ambient background data used for this permit includes the following from (insert source):

TABLE 11: Ambient and Effluent Conditions Used in Modeling

Parameter	Value used
7Q10 low flow	Present: 65.3 cfs (May–Oct); 218.6 cfs (Nov–Apr) New Downstream Location: 114 cfs (Dry Weather)
River Velocity	0.06 ft/sec (May – Oct) and 0.18 ft/sec (Nov – Apr)
Depth at Outfall	Present: 14.0 feet (May – Oct) and 17.5 ft (Nov – Apr)
River Temperature Maximum River Temp	16^{o} C (May-Oct) and 9^{o} C (Nov-Apr) 24.5^{o} C (Summer Dry Weather); 13^{o} C (Wet Weather)

River pH (high)	7.9 (Summer Dry Weather) 7.53 (Nov-Apr)
Ambient Ammonia (as N)	0.024 mg/L
Effluent Fecal Coliform	41/100 mL dry weather (>100/100 mL storm related)
Effluent Turbidity	20 NTU
Ambient Hardness	26.3 mg/L as CaCO3

The derivation of water quality-based limits takes into account the variability of the pollutant concentrations in both the effluent and the receiving water. Water quality-based limits are derived for the waterbody's *critical condition,* which represents the receiving water and waste discharge condition with the highest potential for adverse impact on the aquatic biota and existing or characteristic water body uses.

Water Quality Modeling Methods (TMDL) --The Chehalis River system was modeled using version 5.10 of the WASP5 model, with its eutrophication kinetic subroutine EUTRO5 (Ambrose *et al*., 1993). This model is supported by the EPA. WASP5 allows time-dependent, three-dimensional modeling of oxygen, nutrients, BOD, and phytoplankton and conservative parameters.

BOD and Ammonia --The impact of BOD and ammonia on the receiving water was also modeled using the WASP5 Model (see TMDL report, July 1994) at critical receiving water conditions and with the technology-based effluent limitation for BOD described above. The TMDL field testing results and model calculations used to determine the WLA for BOD and ammonia are available from the Department upon request. Title of document is Upper Chehalis River Total Maximum Daily Load Study, July 1994 (>300 pages). This document was revised based upon additional data and a negotiated consent decree. The revised document is titled Revised Upper Chehalis River Basin Dissolved Oxygen Total Maximum Daily Load Submittal Report; March 2000; Ecology publication 00-10-018. This revised TMDL was subsequently approved by the EPA.

BOD_5--Under critical conditions there was a prediction of a violation of the dissolved oxygen criterion for the receiving water with any waste load allocation (WLA) to the Centralia reach. Initially, it was determined that a BOD_5 effluent limit of 0 mg/L or 0 lbs/day was found to be necessary to protect the dissolved oxygen criterion at the point of discharge. The revised TMDL authorized WLAs for BOD_5 and for ammonia downstream of the Skookumchuck River at 925 lbs/day and 123 lbs/day, respectively. The critical WWTP discharge (1.8 MGD) used in the WLA determination was based on the 95th percentile calculation of effluent data from 1992-1995 and was not revisited again in this permit reissuance.

Since the current facility cannot meet TMDL load allocation limits, the negotiated compromise was that the discharge will be moved to a point downstream. An agreed order for this action was entered into instead of immediate imposition of the more stringent water quality-based limitation. The permit reflects the conditions of this Order.

Temperature --The impact of temperature in the vicinity of the outfall was not modeled because a proper analysis of effluent impacts on river temperatures requires data on average river and effluent temperature from the same days. Data is also needed for a representative number of days throughout the critical period. This type of data was unavailable in the permit issuance process but the proposed permit will require its collection. POTW temperatures begin the critical season at a higher temperature than the river. While effluent temperature tends to rise as river temperatures rise, it does so at a slower rate and to a lesser degree. The point at which river temperatures exceed effluent temperature has not been established, and the data to be collected should help establish that point.

Effluent temperatures show less variation than river temperatures for a given 24-hour period, dictating the use of an average temperature basis. Based on the Permittee's data, effluent temperatures can be below 18°C up to 22°C during the critical season. The maximum monthly average effluent temperature reported in the permit application was 20.0°C. River temperatures show similar variability, but with maximum temperatures up to 24.5°C. The Department's draft temperatures TMDL shows a measured temperature downstream of the outfall of 21.7°C in August 1991 and 22.6 °C in August 1992. With the change of outfall location to a point downstream of the confluence of the Skookumchuck River within the next five years, it makes little sense to collect stream temperature data at the current outfall location. Such data would not be useful in the next permit reissuance (in five years). However, collection of data at the downstream outfall site would be of significant utility and hence is required.

Given the unknown variables, it is impossible to conclude what potential exists for the effluent to cause a violation of Water Quality Standards for temperature at the new discharge location. Therefore, while data collection requirements and the requirement to analyze technological improvements to improve the situation were included in the permit, temperature was not limited. The temperature TMDL may further establish the need for a temperature limit.

pH -- The technology-based effluent limitations for pH was placed in the permit to protect the river to a pH between 6.5 and 8.5 standard units.

Fecal Coliform--The impact of effluent concentrations of fecal coliform was modeled by simple mixing analysis using the technology-based limit of a maximum of 400 colonies per 100 ml and the chronic dilution factor of 4.0. The technology-based limit was found to meet the Water Quality Standards of a maximum of 200 colonies per 100 ml and an average (geometric mean) of 100 colonies per 100 ml.

Under these conditions there is no predicted violation of the Water Quality Standards. Therefore, the technology-based effluent limitation for fecal coliform bacteria was placed in the permit.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require NPDES permits to contain effluent limits for toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the water quality criteria. This process occurs concurrently with the derivation of technology-based effluent limits. Facilities with technology-based effluent limits defined in regulation are not exempted from meeting the Water Quality Standards or from having water quality-based effluent limits.

The Department has determined that the applicant has the toxic pollutants ammonia and total chlorine residual in their effluent. A determination of the reasonable potential of these pollutants to cause a violation of the Water Quality Standards is therefore required.

The determination of potential of ammonia and total chlorine residual to exceed the water quality criteria was conducted using receiving water and waste discharge conditions that represent the highest potential for toxicity in the receiving water environment. This condition is called the critical condition. The critical condition in this case occurs from May through October. The parameters used in the critical condition modeling were not modified from the previous permit fact sheet and are as follows: acute dilution factor 1.41, chronic dilution factor 4.00, receiving water temperature 22.6°C, receiving water pH 7.90, receiving water hardness 50 (as mg $CaCO_3$/L), receiving water ammonia (NH_3-N) 0.024 mg/L.

The reasonable potential to exceed water quality criteria was evaluated with procedures given in EPA, 1991, as shown in Appendix C.

Effluent limits were derived for ammonia (NH3-N) and Total Chlorine Residual, which were determined to have a reasonable potential for violating Water Quality Standards. The Centralia WWTP chlorinated effluent is currently dechlorinated prior to discharge in order to meet present chlorine limits.

Effluent limits for the current and future outfall locations for both seasons were calculated using methods from EPA, 1991, as incorporated into the Department's spreadsheet tool "tsdcalc9.xls" and included in Appendix C. The following effluent limits are based on the toxic effects of ammonia and chlorine at the edge of the mixing zones at the current and proposed discharge locations. Future outfall mixing estimations are based on the best case and a mixing zone study is needed:

TABLE 12 – Water Quality Based Limits

Parameter – Current Outfall	Monthly Average	Daily Maximum
Ammonia (Summer as N)	2.2 mg/L*	5.0 mg/L*
Ammonia (Winter as N)	9.5 mg/L*	19.1 mg/L*
Total Chlorine Residual	0.013 mg/L	0.027 mg/L
Parameter – Future Outfall	Monthly Average	Daily Maximum
Ammonia (Summer as N)	3.44 mg/L	7.75 mg/L**
Ammonia (Winter as N)	14.6 mg/L	32.9 mg/L
Total Chlorine Residual	No Discharge	No Discharge

* While the listed limits would be protective of water quality, it is not possible to achieve these limits with the present facility. The current facility has little ability to nitrify ammonia, and presently ammonia concentrations in the outfall are largely a function of the dilution provided by other wastestreams including inflow and infiltration (I&I). Therefore, performance based ammonia limits were set in the 1996 permit based upon the current facility's demonstrated performance at 30 mg/L (monthly average) and 35 mg/L (daily max.) for the Summer. Winter ammonia limits were set at 13 mg/L (monthly average) and 22 mg/L (daily maximum).

** The Consent Decree includes a more restrictive limit for ammonia (maximum dry weather = 4.0 mg/L) and would therefore be applicable. The consent decree applies the TMDL to the new outfall, and considers the overall cumulative effects of this discharge and others not just toxicity at the edge of the mixing zone. The consent decree also includes mass loading limits on ammonia, which would apply in addition to the more restrictive concentration based limits.

For this permitting action, the Permittee has requested the use of mass based limits rather than concentration based limits for interim ammonia limits. The Department recognizes that this is perhaps a better approach since effluent mass discharges fluctuate far less than concentrations. This approach also encourages additional I&I work. Such work could otherwise increase ammonia concentrations to a level not authorized under the present permit.

An equivalent mass limit on ammonia was initially proposed as the current concentration limit times the average dry weather monthly flow over the past five years (1.53 MGD). This methodology yielded limits of 380 lbs/day (monthly average year round) and 450 lbs/day (daily maximum summer) and 664 lbs/day (daily maximum winter). Feedback from the Permittee asked for higher limits and questioned the methodology. Because of the lack of consensus on this approach, the Department determined that a more rigorous analysis using the Department's standard procedures for development of performance based limits needed to be followed.

The Department's Permit Writer's Manual establishes a standard methodology for deriving performance based limits. This methodology requires using actual effluent discharge loadings over time. Loading data was calculated from flow and concentration data for ammonia reported to date. This information was used to develop limits reflective of the actual 95th percentile value of the log transformed data set of monthly effluent loadings of ammonia between April 1995 and April 2001. This yielded monthly average effluent limits for ammonia of 282 lbs/day for the summer and 360 lbs/day for the winter.

Daily Ammonia Limits determined by rigorous analysis: (TBD)

Metals limits were not considered for this permitting action for several reasons. There was little data on effluent metals concentrations, and such data would not necessarily reflect conditions at the new proposed discharge point. Also, the impending construction of a new facility likely will alter the effluent characteristics. There are also currently no known industrial sources of metals.

Schedule For Meeting Final Ammonia Effluent Limits

The Department realizes that the Permittee will need to construct additional wastewater facilities to comply with this permit final ammonia effluent limits. Therefore, the Department has allowed and included the schedule of Table 1 (included also below):

MILESTONE:	MILESTONE DATE:
1. Obtain Approval of Plans and Specifications	December 1, 2001
2. Award Project Construction Contract	June 1, 2002
3. Report on Construct Completed to Date	June 1, 2003
4. Complete Construction & Begin Initial Operation	June 1, 2004
5. Achieve Compliance with Final Limits	January 1, 2005

TMDL-BASED STRATEGY FOR MEETING WATER QUALITY LIMITS

Implementation of the actions necessary to achieve this TMDL will occur in phases. The long-term goal of the Department's Water Quality Program is to use the information presented in the TMDL study to protect beneficial uses and achieve state water quality standards in the main stem and tributaries of the upper Chehalis watershed

For the current permit action, interim limits will be established based upon what the Permittee can achieve with its current facility. The permit will include requirements to construct a facility that will meet the loading limits of the TMDL by the earliest possible date. In this case, the Permittee already has an approved General Sewer Plan and Engineering Report designed to accomplish this action, and an offer of a grant and loan package to complete this construction. Interim discharge limits for the critical season in the proposed NPDES permit for the City of Centralia will be monthly averages of 30 mg/L BOD, TSS, and Ammonia. These limits are historically achievable, and should remain so throughout the term of this permit with proper operation and maintenance.

The long-term strategy for years six through ten is to meet water quality standards of the revised TMDL (as included in the Consent decree), toxic pollutant standards (which will be based upon the mixing zone ratios of the new outfall location, and cannot be reasonably predicted at this juncture), and technology based limits, which equate to secondary treatment standards for this category of discharger.

Monitoring to validate the TMDL study and measure water quality improvement in the Chehalis River will be ongoing requirements included in this permitting action. Adjustments to wasteload allocations and load allocations may be made depending on the analysis of this data and studies.

WHOLE EFFLUENT TOXICITY

The Water Quality Standards for Surface Waters require that the effluent not cause toxic effects in the receiving waters. Many toxic pollutants cannot be detected by commonly available detection methods. However, toxicity can be measured directly by exposing living organisms to the wastewater in laboratory tests and measuring the response of the organisms. Toxicity tests measure the aggregate toxicity of the whole effluent, and therefore this approach is called whole effluent toxicity (WET) testing. Some WET tests measure acute toxicity and other WET tests measure chronic toxicity.

Acute toxicity tests measure mortality as the significant response to the toxicity of the effluent. Dischargers who monitor their wastewater with acute toxicity tests are providing an indication of the potential lethal effect of the effluent to organisms in the receiving environment.

Chronic toxicity tests measure various sublethal toxic responses such as retarded growth or reduced reproduction. Chronic toxicity tests often involve either a complete life cycle test of an organism with an extremely short life cycle or a partial life cycle test on a critical stage of one of a test organism's life cycles. Organism survival is also measured in some chronic toxicity tests.

In accordance with WAC 173-205-040, the Permittee's effluent has been determined to have the potential to contain toxic chemicals. The proposed permit would ordinarily contain requirements for whole effluent toxicity testing as authorized by RCW 90.48.520 and 40 CFR 122.44 and in accordance with procedures in Chapter 173-205 WAC. However, the Permittee is improving pollution control in order to meet other regulatory requirements. The results of an effluent characterization for toxicity would not be accurate until after the improvements have been completed.

Water Qulaity rules in WAC 173-205-030(4) allow the Department to delay effluent characterization for WET for existing facilities that are under a compliance schedule in a permit to implement technology-based controls or to achieve compliance with surface water quality-based effluent limits. Special Condition S10 delays effluent characterization for WET until the completion or startup of the new or improved wastewater facility required in Special Condition S1.D.

If acute or chronic toxicity is measured during effluent characterization at levels that, in accordance with WAC 173-205-050(2)(a), have a reasonable potential to cause receiving water toxicity, then the proposed permit will set a limit on the acute or chronic toxicity. The proposed permit will then require the Permittee to conduct WET testing in order to monitor for compliance with either an acute toxicity limit, a chronic toxicity limit, or both an acute and a chronic toxicity limit. The proposed permit also specifies the procedures the Permittee must use to come back into compliance if the limits are exceeded.

Accredited WET testing laboratories have the proper WET testing protocols, data requirements, and reporting format. Accredited laboratories are knowledgeable about WET testing and capable of calculating an NOEC, LC_{50}, EC_{50}, IC_{25}, etc. All accredited labs have been provided the most recent version of the Department of Ecology Publication # WQ-R-95-80, *Laboratory Guidance and Whole Effluent Toxicity Test Review Criteria* which is referenced in the permit. Any Permittee interested in receiving a copy of this publication may call the Ecology Publications Distribution Center (360) 407-7472 for a copy. The Department recommends that Permittees send a copy of the acute or chronic toxicity sections(s) of their permits to their laboratory of choice.

When the WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water toxicity, the Permittee will not be given WET limits but will be required to use rapid

screening tests to assure toxicity doesn't appear. If a rapid screening test indicates that toxicity has appeared, the Permittee will investigate immediately and take appropriate action.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted in response to rapid screening tests fails to meet the performance standards in WAC 173-205-020 "whole effluent toxicity performance standard."

When the WET tests during effluent characterization indicate that no reasonable potential exists to cause receiving water toxicity, the Permittee will not be given WET limits and will only be required to retest the effluent prior to application for permit renewal in order to demonstrate that toxicity has not increased in the effluent.

If the Permittee makes process or material changes which, in the Department's opinion, results in an increased potential for effluent toxicity, then the Department may require additional effluent characterization in a regulatory order, by permit modification, or in the permit renewal. Toxicity is assumed to have increased if WET testing conducted for submission with a permit application fails to meet the performance standards in WAC 173-205-020, "whole effluent toxicity performance standard." The Permittee may demonstrate to the Department that changes have not increased effluent toxicity by performing additional WET testing after the time the process or material changes have been made.

SEDIMENT QUALITY

The Department has promulgated aquatic sediment standards (Chapter 173-204 WAC) to protect aquatic biota and human health. These standards state that the Department may require Permittees to evaluate the potential for the discharge to cause a violation of applicable standards (WAC 173-204-400).

The Department has determined through a review of the discharger characteristics and effluent characteristics that this discharge has no reasonable potential to violate the Sediment Management Standards.

COMPARISON OF EFFLUENT LIMITS WITH THE EXISTING PERMIT ISSUED OCTOBER 29, 1996:

TABLE 13 – Comparison of Present Limits and Agreed Order to Proposed Permit

EFFLUENT LIMITS COMPARISON:						
Parameter	**1996 Permit**		**Consent Decree**		**Proposed Permit**	
	Interim Limit	**Final Limit**	**Interim Limit**	**Final Limit**	**Interim Limit**	**Final Limit For Phase 1**
BOD5						
BOD5 Dry Weather (1) Monthly	35 mg/L 400 lbs/day 85% rem.	20 mg/L 650 lbs/day 85% rem.	Not set	20 mg/L 85% removal	35 mg/L 500 lbs/day 85% removal	20 mg/L 617 lbs/day 85% rem.
BOD5 Dry Weather (1) Week/Day	52 mg/L 600 lbs/day (max week)	30 mg/L 926 lbs/day (max day)	Not set	30 mg/L 926 lbs/day (max day)	45 mg/L 750 lbs/day (max week)	30 mg/L 926 lbs/day (max day)
BOD5 – low river (3) Monthly	Not Defined	20 mg/L 583 lbs/day 85% rem.	Not set	Not set	Not set	Not set
BOD5 – low river (3)	Not set	30 mg/L 826 lbs/day	Not set	826 lbs/day	Not set	826 lbs/day (additional)

Daily						
BOD5 Wet Weather [2] Monthly	30 mg/L 570 lbs/day 75% removal	30 mg/L 1305 lbs/day 85% rem.	Removal rate per the 1996 permit.	30 mg/L 85% removal [5]	30 mg/L 915 lbs/day 75% removal	30 mg/L 627 lbs/day 85% rem.
BOD5 Wet Weather [2] Week/Day	45 mg/L 855 lbs/day (max week)	45 mg/L 2503 lbs/day (max day)	Not set	45 mg/L 2,530 lbs/day (max day)	45 mg/L 1,372 lbs/day	45 mg/L 941 lbs/day (max week)
TSS						
TSS - Dry Weather [1] Monthly	35 mg/L 500 lbs/day 80% removal	20 mg/L 650 lbs/day 85% rem.	Not set	20 mg/L 85% removal	35 mg/L 500 lbs/day 85% removal	20 mg/L 617 lbs/day 85% rem.
TSS - Dry Weather [1] Week/Day	52 mg/L 750 lbs/day (max week)	30 mg/L 926 lbs/day (max day)	Not set	30 mg/L 926 lbs/day	Not set	30 mg/L 926 lbs/day (max day)
TSS – low river [3] Monthly	Not set	20 mg/L 583 lbs/day 85% rem.	Not set	Not set	Not set	Not set
TSS – low river [3] Daily	Not set	30 mg/L 826 lbs/day (max day)	Not set	826 lbs/day (max day)	Not set	826 lbs/day (max day)
TSS - Wet Weather [2] Monthly	35 mg/L 675 lbs/day 70% removal	30 mg/L 1305 lbs/day 85% rem.	Removal rate per the 1996 permit.	30 mg/L 85% rem. [5]	35 mg/L 1,098 lbs/day 70% removal	30 mg/L 627 lbs/day 85% rem.
TSS - Wet Weather [2] Week/day	52 mg/L 1,013 lbs/day (max week)	45 mg/L 2530 lbs/day (max day)	Not set	45 mg/L 2,530 lbs/day	52 mg/L 1,647 lbs/day (max week)	45 mg/L 941 lbs/day (max week)
AMMONIA						
Ammonia - Dry W. [1] Monthly	30.0 mg/L		Not set	Not set	282 lbs/day	
Ammonia - Dry W. [1] Daily	35.0 mg/L	4.0 mg/L 123 lbs/day	Not set	4.0 mg/L & 123 lbs/day	??	4.0 mg/L & 123 lbs/day
Ammonia – Low Riv. [3] Daily	Not set	4.0 mg/L 110 lbs/day	Not set	4.0 mg/L & 110 lbs/day	Not set	4.0 mg/L 110 lbs/day
Ammonia – Low Riv. [3] Monthly	Not set	Not set	Not set	Not set	Not set	Not set
Ammonia – Dry Late [4] Daily	Not set	15 mg/L 463 lbs/day	Not set	15.0 mg/L & 463 lbs/day	Not set	15.0 mg/L & 463 lbs/day
Ammonia – Dry Late [4]	Not set	Not set	Not set	Not set	Not set	Not set

Monthly						
Ammonia - Wet W. (2) Monthly	13.0 mg/L		31.6 mg/L	Not set	360 lbs/day	
Ammonia - Wet W. (2) Daily	22.0 mg/L	15 mg/L 657 lbs/day	12.9 mg/L	Not set	??	15 mg/L 657 lbs/day
FLOW						
Eff. Dry W Flow (1)	Not set		Not set	3.7 MGD (daily max)	Not set	3.7 MGD (daily max)
Effluent LR Flow (3)	Not set		Not set	3.3 MGD (daily max)	Not set	3.3 MGD (daily max)
Effluent Wet Flow(2)	Not set		Not set	10.5 MGD (daily max)	Not set	10.5 MGD (daily max)
OTHER						
Fecal Coliform Monthly	200/100 ml	200/100 ml	Not set	Not set	200/100 ml	200/100 ml
Fecal Coliform Max Week	400/100 ml	400/100 ml	Not set	Not set	400/100 ml	400/100 ml
PH	6.0 min to 9.0 max.	6.0 min to 9.0 max	Not set	Not set	6.0 min to 9.0 max.	6.0 min to 9.0 max.
Total Res. Cl. dry w (1)	0.015 mg/L (month ave) 0.031 mg/L (daily max.)	Not set	Not set	Not set	0.015 mg/L (month ave) 0.031 mg/L (daily max.)	Not set (Not using chlorine per facility plan)
Total Res. Cl. wet w(2)	0.016 mg/L month ave. 0.032 mg/L (daily max)	Not set	Not set	Not set	0.016 mg/L (month ave) 0.032 mg/L (daily max.)	Not set (Chlorine for O&M is OK if monitored)

FOOT NOTES FOR TABLE 13:

[1]"Dry weather" is defined differently for the 1996 permit and Agreed Order. For the 1996 permit, limits for dry weather were established seasonally from May 1 to October 31 of each year. By the Agreed Order, the period is defined as beginning 14 days after the 7-day moving average flow is less than 1,000 cubic feet per second (cfs), but no earlier than March 1 of each year. The period lasts until the seven-day moving average flow is greater than 1,000 cfs and the daily flow to the Centralia Reach has been greater than 2,500 cfs at least one day of the preceding seven days.

[2]"Wet weather" is the period that doesn't meet the dry weather criteria. In the 1996 permit, limits for wet weather were established seasonally from November 1 to April 30 of each year. Per the Agreed Order the period shall be all days not covered by the "dry weather" criteria as defined in note 1.

[3]"Low River" flow limits are defined as a special case of the dry weather situation where dry weather limits are in force and flow in the Chehalis river is less than 200 cfs.

[4]"Late Dry Weather" is defined as a special case of the dry weather situation where dry weather limits

apply and the date is between December 1 and March 14. Only ammonia limits are different for the late dry weather period.

[5]The 85 percent removal for wet weather BOD and TSS is the default standard as it is included in the definition of secondary treatment (40 CFR part 133). The Agreed Order notes that the final removal rate percentage criteria will be "per WAC 173-221-050." This section allows an exception to the 85 percent removal requirements for trickling filters last updated prior to 1985 (inapplicable), and waste stabilization ponds less than 2.0 mg/L in capacity (inapplicable). It also allows case-by-case exceptions for combined sewers (inapplicable) and domestic wastewater facilities that have less concentrated wastewater. The last exception requires the less concentrated wastewater not be the result of excessive I&I (inapplicable). This criteria has not been met by the City, and it not expected to be met, especially with the City's plans to not reduce I&I. Nonetheless, if the City can show this and the other criteria for applying this exception have been met, an alternative removal rate could be applied.

[6]The Agreed Order final limits for dry weather also requires that the discharge be downstream of the Centralia Reach, below the mouth of the Skookumchuck River. Dry weather limits are otherwise inapplicable.

MONITORING REQUIREMENTS

Monitoring, recording, and reporting are required (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and the effluent limitations are being achieved.

Monitoring for temperature is also being required to further characterize the effluent. This pollutant could have a significant impact on the quality of the surface water.

Monitoring of sludge quantity and quality is necessary to determine the appropriate uses of the sludge. Sludge monitoring is required by the current state and local solid waste management program and also by EPA under 40 CFR 503.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring. The required monitoring frequency is consistent with agency guidance given in the current version of the Department's *Permit Writer's Manual* (July 1994) for trickling filter plants. Monitoring under the next permit should consider modifications necessary because of the switch to an activated sludge plant.

Additional monitoring is required in order to further characterize the effluent. These monitored pollutants could have a significant impact on the quality of the surface water.

As a POTW with the potential to accept industrial wastewater, the City of Centralia is required to have influent, primary clarifier effluent, final effluent, and sludge sampled for toxic pollutants in order to characterize the industrial input. Sampling is also done to determine if pollutants interfere with the treatment process or pass through the plant to the sludge or the receiving water. The monitoring data will be used by the Department to develop local limits which commercial and industrial users must meet.

EFFLUENT LIMITS BELOW QUANTITATION

The water quality-based effluent limits for chlorine in the wastewater are below the capability of current analytical technology to quantify. The Quantitation Level is the level at which concentrations can be reliably reported with a specified level of error. For maximum daily effluent limits, if the measured effluent concentration is below the Quantitation Level, the Permittee reports NQ for non-quantifiable.

For average monthly effluent limits, all effluent concentrations below the Quantitation Level but above the Method Detection Level are used as reported for calculating the average monthly value.

LAB ACCREDITATION

With the exception of certain parameters the permit requires all monitoring data to be prepared by a laboratory registered or accredited under the provisions of Chapter 173-50 WAC, *Accreditation of Environmental Laboratories.*

OTHER PERMIT CONDITIONS

REPORTING AND RECORDKEEPING

The conditions of S3 are based on the authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

PREVENTION OF FACILITY OVERLOADING

Overloading of the treatment plant is a violation of the terms and conditions of the permit. To prevent this from occurring, RCW 90.48.110 and WAC 173-220-150 requires the Permittee to take the actions detailed in proposed permit requirement S.4. to plan expansions or modifications before existing capacity is reached and to report and correct conditions that could result in new or increased discharges of pollutants. Because a new facility is required to meet water quality standards, a timeline for this construction is included in this section. Conditions in section S.4 restrict the amount of flow.

OPERATION AND MAINTENANCE (O&M)

The proposed permit contains Condition S.5 as authorized under RCW 90.48.110, WAC 173-220-150, Chapter 173-230 WAC, and WAC 173-240-080. It is included to ensure proper operation and regular maintenance of equipment, and to ensure that adequate safeguards are taken so that constructed facilities are used to their optimum potential in terms of pollutant capture and treatment. Condition S5 requires the Permittee shall provide, upon completion of construction and prior to operation of the new facility, an updated O&M manual for that facility and remaining components of the current facility.

RESIDUAL SOLIDS HANDLING

To prevent water quality problems the Permittee is required in permit Condition S7 to store and handle all residual solids (grit, screenings, scum, sludge, and other solid waste) in accordance with the requirements of RCW 90.48.080 and State Water Quality Standards.

The final use and disposal of sewage sludge from this facility is regulated by U.S. EPA under 40 CFR 503. The disposal of other solid waste is under the jurisdiction of the Lewis County Health Department.

Requirements for monitoring sewage sludge and recordkeeping are included in this permit. This information will by used by the Department to develop or update local limits and is also required under 40 CFR 503.

PRETREATMENT

To provide more direct and effective control of pollutants discharged, the City of Centralia has been delegated permitting, monitoring, and enforcement authority for industrial users discharging to their treatment system. The Department oversees the delegated Industrial Pretreatment Program to assure

compliance with federal pretreatment regulations (40 CFR Part 403) and categorical standards and state regulations (Chapter 90.48 RCW and Chapter 173-216 WAC).

To provide more direct and effective control of pollutants discharged to the sanitary sewer, the Permittee is required under 40 CFR Part 403 to develop a pretreatment program to detect and enforce against violations of categorical pretreatment standards promulgated under the federal Clean Water Act.

An industrial user survey is required to determine the extent of compliance of all industrial users of the sanitary sewer and wastewater treatment facility with federal pretreatment regulations (40 CFR Part 403 and Sections 307(b) and 308 of the Clean Water Act), with state regulations (Chapter 90.48 RCW and Chapter 173-216 WAC), and with local ordinances.

As sufficient data becomes available, the Permittee shall, in consultation with the Department, reevaluate its local limits in order to prevent pass through or interference. Upon determination by the Department that any pollutant present causes pass through or interference, or exceeds established sludge standards, the Permittee shall establish new local limits or revise existing local limits as required by 40 CFR 403.5. In addition, the Department may require revision or establishment of local limits for any pollutant that causes an exceedance of the Water Quality Standards or established effluent limits, or that causes whole effluent toxicity. The determination by the Department shall be in the form of an Administrative Order. In order to develop these local limits, the Department will provide environmental criteria or limits for the various pollutants of concern.

The Department may modify this permit to incorporate additional requirements relating to the establishment and enforcement of local limits for pollutants of concern. Any permit modification is subject to formal due process procedures pursuant to state and federal law and regulation.

Federal and State Pretreatment Program Requirements

Under the terms of the addendum to the "Memorandum of Understanding between Washington Department of Ecology and the United States Environmental Protection Agency, Region 10" (1986), the Department has been delegated authority to administer the Pretreatment Program [i.e., act as the Approval Authority for oversight of delegated Publicly Owned Treatment Works (POTWs)]. Under this delegation of authority, the Department has exercised the option of issuing wastewater discharge permits for significant industrial users discharging to POTWs which have not been delegated authority to issue wastewater discharge permits.

There are a number of functions required by the Pretreatment Program, which the Department is delegating to such POTWs because they are in a better position to implement the requirements (e.g., tracking the number and general nature of industrial dischargers to the sewerage system). The requirements for a Pretreatment Program are contained in Title 40, part 403 of the Code of Federal Regulations. Under the requirements of the Pretreatment Program [40 CFR 403.8(f)(1)(iii)], the Department is required to approve, condition, or deny new discharges or a significant increase in the discharge for existing significant industrial users (SIUs) [40 CFR 403.8 (f)(1)(i)].

The Department is responsible for issuing State Waste Discharge Permits to SIUs and other industrial users of the Permittee's sewer system. Industrial dischargers must obtain these permits from the Department prior to the Permittee accepting the discharge [WAC 173-216-110(5)] (Industries discharging wastewater that is similar in character to domestic wastewater are not required to obtain a permit. Such dischargers should contact the Department to determine if a permit is required.) Industrial dischargers need to apply for a State Waste Discharge Permit 60 days prior to commencing discharge. The conditions contained in the permits will include any applicable conditions for categorical discharges, loading

limitations included in contracts with the POTW, and other conditions necessary to assure compliance with state water quality standards and biosolids standards.

The Department requires this POTW to fulfill some of the functions required for the Pretreatment Program in the NPDES permit (e.g., tracking the number and general nature of industrial dischargers to the sewage system). The POTWs NPDES permit will require that all SIUs currently discharging to the POTW be identified and notified of the requirement to apply for a wastewater discharge permit from the Department. None of the obligations imposed on the POTW relieve an industrial or commercial discharger of its primary responsibility for obtaining a wastewater discharge permit (if required), including submittal of engineering reports prior to construction or modification of facilities [40 CFR 403.12(j) and WAC 173-216-070 and WAC 173-240-110, et seq.].

Wastewater Permit Required

RCW 90.48 and WAC 173-216-040 require SIUs to obtain a permit prior to discharge of industrial waste to the Permittee's sewerage system. This provision prohibits the POTW from accepting industrial wastewater from any such dischargers without authorization from the Department.

Requirements for Routine Identification and Reporting of Industrial Users

The NPDES permit requires non-delegated POTWs to " take continuous, routine measures to identify all existing, new, and proposed SIUs and potential significant industrial users (PSIUs) discharging to the Permittee's sewerage system." Examples of such routine measures include regular review of business tax licenses for existing businesses and review of water billing records and existing connection authorization records. System maintenance personnel can also be diligent during performance of their jobs in identifying and reporting as-yet unidentified industrial dischargers. Local newspapers, telephone directories, and word-of-mouth can also be important sources of information regarding new or existing discharges. The POTW is required to notify an industrial discharger, in writing, of their responsibilities regarding application for a State waste discharge permit and to send a copy of the written notification to the Department. The Department will then take steps to solicit a state waste discharge permit application.

Requirements for Performing an Industrial User Survey

This POTW has the potential to serve significant industrial or commercial users and is required to perform an Industrial User Survey. The goal of this survey is to develop a list of SIUs and PSIUs, and of equal importance, to provide sufficient information about industries which discharge to the POTW, to determine which of them require issuance of state waste discharge permits or other regulatory controls. An Industrial User Survey is an important part of the regulatory process used to prevent interference with treatment processes at the POTW and to prevent the exceedance of water quality standards. The Industrial User Survey also can be used to contribute to the maintenance of sludge quality, so that sludge can be a useful biosolids product rather than an expensive waste problem. An Industrial User Survey is a rigorous method for identifying existing, new, and proposed significant industrial users and potential significant industrial users. A complete listing of methodologies is available in the Department’s guidance document entitled "Conducting an Industrial User Survey."

Annual Submittal of List of Industrial Users

This provision requires the POTW to submit annually a list of existing and proposed SIUs and PSIUs. This requirement is intended to update the Department on an annual basis of the status of industrial users in the POTWs service area, without requiring the POTW to go through the process of performing a formal Industrial User Survey. This provision is normally applied to POTWs not serving industrial or

commercial users. Although this permit does not require performance of an Industrial User Survey, the Permittee is nevertheless required under the previous section, to take adequate continuous routine measures to identify existing and new industrial discharges.

Duty to Enforce Discharge Prohibitions

This provision prohibits the POTW from authorizing or permitting an industrial discharger to discharge certain types of waste into the sanitary sewer. The first portion of the provision prohibits acceptance of pollutants, which cause pass through or interference. The definitions of pass through and interference are in Appendix B of the fact sheet..

The second portion of this provision prohibits the POTW from accepting certain specific types of wastes, namely those which are explosive, flammable, excessively acidic, basic, otherwise corrosive, or obstructive to the system. In addition wastes with excessive BOD, petroleum-based oils, or which result in toxic gases are prohibited to be discharged. The regulatory basis for these prohibitions is 40 CFR Part 403, with the exception of the pH provisions which are based on WAC 173-216-060.

The third portion of this provision prohibits certain types of discharges unless the POTW receives prior authorization from the Department. The discharges include cooling water in significant volumes, stormwater and other direct inflow sources, and wastewaters significantly affecting system hydraulic loading, which do not require treatment.

Support by the Department for Developing Partial Pretreatment Program by POTW

The Department has committed to providing technical and legal assistance to the Permittee in fulfilling these joint obligations, in particular assistance with developing an adequate sewer use ordinance, notification procedures, enforcement guidelines, and developing local limits and inspection procedures.

SPILL PLAN

The Department has determined that the Permittee stores a quantity of chemicals that have the potential to cause water pollution if accidentally released. The Department has the authority to require the Permittee to develop best management plans to prevent this accidental release under section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080.

The proposed permit requires the Permittee to develop and implement a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs.

The Permittee has developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the Permittee to update this plan and submit it to the Department.

EFFLUENT MIXING STUDY

Within this permit, the Department makes some preliminary estimations of the mixing achievable within the authorized mixing zones at the new discharge location. It is not assured that these dilutions will be achieved, but this was done to estimate the potential for violations of the Water Quality Standards for Surface Waters (Chapter 173-201A WAC) at this location. Condition S.13 of this permit requires the Permittee to more accurately determine the mixing characteristics of the discharge. Mixing must be modeled at the critical conditions as specified in the permit. In the next permit, the Department will determine whether dye studies are needed to assess whether assumptions made by dilution modeling are correct.

OUTFALL EVALUATION

Proposed permit Condition S14 requires the Permittee to conduct an outfall inspection and submit a report detailing the findings of that inspection. The purpose of the inspection is to determine the condition of the discharge pipe and diffusers and to determine if sediment is accumulating in the vicinity of the outfall.

GENERAL CONDITIONS

General Conditions are based directly on state and federal law and regulations and have been standardized for all individual municipal NPDES permits issued by the Department.

PERMIT ISSUANCE PROCEDURES

PERMIT MODIFICATIONS

The Department may modify this permit to impose numerical limitations, if necessary to meet Water Quality Standards, Sediment Quality Standards, or Ground Water Standards, based on new information obtained from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies.

The Department may also modify this permit as a result of new or amended state or federal regulations.

RECOMMENDATION FOR PERMIT ISSUANCE

This proposed permit meets all statutory requirements for authorizing a wastewater discharge, including those limitations and conditions believed necessary to protect human health, aquatic life, and the beneficial uses of waters of the state of Washington. The Department proposes that this permit be issued for five years.

REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1992. National Toxics Rule. Federal Register, V. 57, No. 246, Tuesday, December 22, 1992.

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Metcalf and Eddy.

1991. Wastewater Engineering, Treatment, Disposal, and Reuse. Third Edition.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Water Pollution Control Federation.

1976. Chlorination of Wastewater.

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

The Department has tentatively determined to reissue a permit to the applicant listed on page 1 of this fact sheet. The permit contains conditions and effluent limitations, which are described in the rest of this fact sheet.

Public notice of application was published on October 14, 2000, and October 21, 2000, in the *Centralia-Chehalis Daily Chronicle* to inform the public that an application had been submitted and to invite comment on the reissuance of this permit.

The Department will publish a Public Notice of Draft (PNOD) on August 11, 2001, in the *Centralia-Chehalis Daily Chronicle* to inform the public that a draft permit and fact sheet are available for review. Interested persons are invited to submit written comments regarding the draft permit. The draft permit, fact sheet, and related documents are available for inspection and copying between the hours of 8:00 a.m. and 5:00 p.m. weekdays, by appointment, at the regional office listed below. Written comments should be mailed to:

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

Any interested party may comment on the draft permit or request a public hearing on this draft permit within the 30-day comment period to the address above. The request for a hearing shall indicate the interest of the party and the reasons why the hearing is warranted. The Department will hold a hearing if it determines there is a significant public interest in the draft permit (WAC 173-220-090). Public notice regarding any hearing will be circulated at least 30 days in advance of the hearing. People expressing an interest in this permit will be mailed an individual notice of hearing (WAC 173-220-100).

Comments should reference specific text followed by proposed modification or concern when possible. Comments may address technical issues, accuracy and completeness of information, the scope of the facility's proposed coverage, adequacy of environmental protection, permit conditions, or any other concern that would result from issuance of this permit.

The Department will consider all comments received within 30 days from the date of public notice of draft indicated above, in formulating a final determination to issue, revise, or deny the permit. The Department's response to all significant comments is available upon request and will be mailed directly to people expressing an interest in this permit.

Further information may be obtained from the Department by telephone, (360) 407-6277, or by writing to the address listed above.

This permit and fact sheet were written by David J. Knight P.E.

APPENDIX B--GLOSSARY

Acute Toxicity--The lethal effect of a pollutant on an organism that occurs within a short period of time, usually 48 to 96 hours.

AKART-- An acronym for "all known, available, and reasonable methods of prevention, control, and treatment."

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Average Monthly Discharge Limitation --The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month (except in the case of fecal coliform). The daily discharge is calculated as the average measurement of the pollutant over the day.

Average Weekly Discharge Limitation -- The highest allowable average of daily discharges over a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The daily discharge is calculated as the average measurement of the pollutant over the day.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in a receiving water after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a pollutant on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Combined Sewer Overflow (CSO)--The event during which excess combined sewage flow caused by inflow is discharged from a combined sewer, rather than conveyed to the sewage treatment plant because either the capacity of the treatment plant or the combined sewer is exceeded.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit to accomplish the purpose of a Compliance Inspection - Without Sampling and as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the percent removal requirement. Additional sampling may be conducted.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing a minimum of four discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring –Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Dilution Factor--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10% by volume and the receiving water 90%.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report shall contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short period of time as is feasible.

Industrial User-- A discharger of wastewater to the sanitary sewer which is not sanitary wastewater or is not equivalent to sanitary wastewater in character.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Infiltration and Inflow (I/I)--"Infiltration" means the addition of ground water into a sewer through joints, the sewer pipe material, cracks, and other defects. "Inflow" means the addition of precipitation-caused drainage from roof drains, yard drains, basement drains, street catch basins, etc., into a sewer.

Interference -- A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal and;

Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), sludge regulations appearing in 40 CFR Part 507, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limitation--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is above zero and is determined from analysis of a sample in a given matrix containing the analyte.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--A volume that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in State regulations (Chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the State of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both state and federal laws.

Pass-through -- A discharge which exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation), or which is a cause of a violation of State water quality standards.

pH--The pH of a liquid measures its acidity or alkalinity. A pH of 7 is defined as neutral and large variations above or below this value are considered harmful to most aquatic life.

Potential Significant Industrial User--A potential significant industrial user is defined as an Industrial User which does not meet the criteria for a Significant Industrial User, but which discharges wastewater meeting one or more of the following criteria:

a. Exceeds 0.5 percent of treatment plant design capacity criteria and discharges <25,000 gallons per day or;

b. Is a member of a group of similar industrial users which, taken together, have the potential to cause pass through or interference at the POTW (e.g. facilities which develop photographic film or paper, and car washes).

The Department may determine that a discharger initially classified as a potential significant industrial user should be managed as a significant industrial user.

Quantitation Level (QL)-- A calculated value five times the MDL (method detection level).

Significant Industrial User (SIU)--

1) All industrial users subject to Categorical Pretreatment Standards under 40 CFR 403.6 and 40 CFR Chapter I, Subchapter N and;

2) Any other industrial user that: discharges an average of 25,000 gallons per day or more of process wastewater to the POTW (excluding sanitary, noncontact cooling, and boiler blow-down wastewater); contributes a process wastestream that makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW treatment plant; or is designated as such by the Control Authority* on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR 403.8(f)(6)).

Upon finding that the industrial user meeting the criteria in paragraph 2, above, has no reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement, the Control Authority* may at any time, on its own initiative or in response to a petition received from an industrial user or POTW, and in accordance with 40 CFR 403.8(f)(6), determine that such industrial user is not a significant industrial user.

*The term "Control Authority" refers to the Washington State Department of Ecology in the case of non-delegated POTWs or to the POTW in the case of delegated POTWs.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, wetlands, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids are the particulate materials in an effluent. Large quantities of TSS discharged to a receiving water may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration or mass of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into a receiving water.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on the Department's homepage at http.www:wa.gov.ecology.

Ammonia Water Quality Criteria Spreadsheet:

INPUT	**Summer**	**Winter**
1. Ambient Temperature (deg C; 0<T<30)	24.5	13.0
2. Ambient pH (6.5<pH<9.0)	7.90	7.53
3. Acute TCAP (Salmonids present- 20; absent- 25)	20	20
4. Chronic TCAP (Salmonids present- 15; absent- 20)	15	15
OUTPUT		
1. Intermediate Calculations:		
Acute FT	1.00	1.62
Chronic FT	1.41	1.62
FPH	1.05	1.39
RATIO	14	17
pKa	9.26	9.63
Fraction Of Total Ammonia Present As Un-ionized	4.1806%	0.7904%
2. Un-ionized Ammonia Criteria		
Acute (1-hour) Un-ionized Ammonia Criterion (ug NH3/L)	246.9	115.1
Chronic (4-day) Un-ionized Ammonia Criterion (ug NH3/L)	39.8	20.6
3. Total Ammonia Criteria:		
Acute Total Ammonia Criterion (mg NH3+ NH4/L)	5.9	14.6
Chronic Total Ammonia Criterion (mg NH3+ NH4/L)	1.0	2.6
4. Total Ammonia Criteria expressed as Nitrogen:		
Acute Ammonia Criterion as mg N	4.9	12.0
Chronic Ammonia Criterion as N	0.78	2.14

Analysis of 95th percentile monthly average BOD concentration (worst case) for determination of performance based limits for BOD – Results are that performance based limits would be above 30 mg/L and therefore limits of 35 mg/L have been retained.

BOD, 5-DAY (20 DEG. C)	MG/L	AVG	21	N	1-May-95 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	23	N	1-Jun-95 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	22.12	N	1-Jul-95 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	29.33	N	1-Aug-95 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	31.5	Y	1-Sep-95 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	24.64	N	1-Oct-95 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	16	N	1-May-96 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	22	N	1-Jun-96 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	20.9	N	1-Jul-96 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	25.9	N	1-Aug-96 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	33.2	Y	1-Sep-96 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	38.6	Y	1-Oct-96 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	19	N	1-May-97 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	24	N	1-Jun-97 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	23.5	N	1-Jul-97 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	31	N	1-Aug-97 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	27.5	N	1-Sep-97 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	24.9	N	1-Oct-97 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	13	N	1-May-98 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	9	N	7-Jun-98 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	20	N	1-Jul-98 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	20	N	1-Aug-98 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	18	N	1-Sep-98 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	20	N	1-Oct-98 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	14	N	1-May-99 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	11	N	1-Jun-99 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	16	N	1-Jul-99 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	6	N	1-Aug-99 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	12	N	1-Sep-99 s
BOD, 5-DAY (20 DEG. C)	MG/L	AVG	11	N	1-Oct-99 s

95th Percentile worst case concentration BOD - MMA (mg/L):	32.435

Winter BOD percent Removal Requirement – Is 75 percent an appropriate performance based requirement?

BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	76.4	N	1-Jan-95 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	79.3	N	1-Feb-95 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	82.18	N	1-Mar-95 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	81	N	1-Apr-95 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	80.9	N	1-Nov-95 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	74.2	N	1-Dec-95 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	76.5	N	1-Jan-96 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	70.69	N	1-Feb-96 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	81.5	N	1-Mar-96 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	81.7	N	1-Apr-96 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	71	Y	1-Nov-96 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	75.4	Y	1-Dec-96 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	73.8	Y	1-Jan-97 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	77.8	N	1-Feb-97 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	78.9	N	1-Mar-97 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	85.2	N	1-Apr-97 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	80	N	1-Nov-97 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	83	N	1-Dec-97 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	78	N	1-Jan-98 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	82	N	1-Feb-98 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	82	N	1-Mar-98 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	91	N	1-Apr-98 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	88.8	N	1-Nov-98 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	82	N	1-Dec-98 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	96.8	N	1-Jan-99 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	83.6	N	1-Feb-99 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	90.3	N	1-Mar-99 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	93	N	1-Apr-99 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	94.6	N	1-Nov-99 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	91.2	N	1-Dec-99 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	90.2	N	1-Jan-00 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	93.9	N	1-Feb-00 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	92.8	N	1-Mar-00 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	97	N	1-Apr-00 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	93.3	N	1-Nov-00 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	94.7	N	1-Dec-00 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	94.6	N	1-Jan-01 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	94.2	N	1-Feb-01 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	94.7	N	1-Mar-01 w
BOD, 5-DAY PERCENT REMOVAL	PERCENT	AVG	93.6	N	1-Apr-01 w
Performance based limit - 95th Percentile (5%ile lowest value): (75% removal is required in the permit)			73.66		

For TSS – Performance based TSS Concentration Limits for Summer: Is 35 mg/L appropriate? Yes as performance based limits would be over 30 mg/L (32 mg/L). Interim limit continued.

1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	29.5	1-May-95 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	28.4	1-Jun-95 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	26.8	1-Jul-95 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	32.5	1-Aug-95 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	31.1	1-Sep-95 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	30.1	1-Oct-95 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	22.6	1-May-96 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	28	1-Jun-96 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	30.7	1-Jul-96 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	29.6	1-Aug-96 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	29.9	1-Sep-96 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	412	1-Oct-96 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	25	1-May-97 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	28.3	1-Jun-97 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	24	1-Jul-97 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	28	1-Aug-97 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	25.2	1-Sep-97 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	31.4	1-Oct-97 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	19	1-May-98 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	16	7-Jun-98 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	21	1-Jul-98 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	23	1-Aug-98 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	19	1-Sep-98 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	23	1-Oct-98 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	25	1-May-99 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	19	1-Jun-99 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	20	1-Jul-99 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	14	1-Aug-99 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	21	1-Sep-99 s
1 SOLIDS, TOTAL SUSPENDED	MG/L	AVG	20	1-Oct-99 s

95%ile summer effluent TSS Conc. (MMA): **32.0 mg/L**

Winter TSS Removal Rate Analysis – Is 70 percent appropriately stringent – Yes, 70 percent continued.

1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	71.8	1-Jan-95 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	70.8	1-Feb-95 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	73.2	1-Mar-95 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	73.2	1-Apr-95 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	77	1-Nov-95 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	61.7	1-Dec-95 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	68.2	1-Jan-96 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	53	1-Feb-96 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	73.7	1-Mar-96 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	73.5	1-Apr-96 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	72.1	1-Nov-96 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	64.8	1-Dec-96 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	64.3	1-Jan-97 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	70.1	1-Feb-97 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	64.2	1-Mar-97 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	76	1-Apr-97 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	75.4	1-Nov-97 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	76.9	1-Dec-97 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	67	1-Jan-98 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	76	1-Feb-98 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	71	1-Mar-98 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	87	1-Apr-98 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	87.8	1-Nov-98 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	80	1-Dec-98 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	87.2	1-Jan-99 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	84	1-Feb-99 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	83.1	1-Mar-99 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	88.6	1-Apr-99 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	92.8	1-Nov-99 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	84.4	1-Dec-99 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	84.8	1-Jan-00 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	89.2	1-Feb-00 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	89.4	1-Mar-00 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	95	1-Apr-00 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	90.6	1-Nov-00 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	91.5	1-Dec-00 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	90.7	1-Jan-01 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	91.1	1-Feb-01 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	92.4	1-Mar-01 w
1 SOLIDS, SUSPENDED, % REMOVAL	PERCENT	AVG	91	1-Apr-01 w

95th percentile worst case TSS removal - Winter: **64.1%**
(70% removal is required by the permit) – Therefore a performance based limit would not be more stringent.

Dilution (Dil'n) factor is the inverse of the percent effluent concentration at the edge of the acute or chronic mixing zone.

Permit Limit Calculation Summary

PARAMETER	Acute Dil'n Factor	Chronic Dil'n Factor	Metal Criteria Translator Acute	Metal Criteria Translator Chronic	Ambient Concentration *ug/L*	Water Quality Standard Acute *ug/L*	Water Quality Standard Chronic *ug/L*	Average Monthly Limit (AML) ug/L	Maximum Daily Limit (MDL) ug/L	Comments
Ammonia - Summer (as N)	1.4	4.00			24.0000	4855.0	783.3763	**2230.6**	**5029.0**	
Ammonia - Winter (as N)	1.6	6.60			24.00	11967.7	2140.8084	**9537.4**	**19133.9**	
Chlorine (summer)	1.4	4.00				19.00	11.00	**13.3**	**26.6**	
Chlorine (winter)	1.6	6.60				19.00	11.00	**15.2**	**30.4**	
Future Ammonia Summer	1.60	6.60			24.00	4855.0	783.4	**3439.1**	**7753.6**	**(in ug/l)**
Future Ammonia Winter	2.75	20.20			24.00	11967.7	2140.8	**14579.2**	**32869.1**	**Order = 15 mg/l day**
										(657lb/d @ 5.25mgd)
POTENTIAL FINAL LIMITS:										
Dry Weather Copper	1.60	6.60	0.996	0.996		4.83	3.63	**3.9**	**7.8**	
Dry Weather Silver	1.60	6.60	0.850			0.35	10000.00	**0.3**	**0.7**	
Dry Weather Zinc	1.60	6.60	0.996	0.996		36.91	33.70	**29.6**	**59.3**	
Wet Weather Copper	2.75	20.20	0.996	0.996		4.83	3.63	**6.7**	**13.3**	
Wet Weather Silver	2.75	20.20	0.850			0.35	10000.00	**0.6**	**1.1**	
Wet Weather Zinc	2.75	20.20	0.996	0.996		36.91	33.70	**50.8**	**101.9**	

LOGNORMAL TRANSFORMED MEAN =	5.3737	5.377
'LOGNORMAL TRANSFORMED VARIANCE =	0.0265	0.09579
NUMBER OF SAMPLES/MONTH FOR COMPLIANCE MONITORING =		
AUTOCORRELATION FACTOR(ne)(USE 0 IF UNKNOWN) =	0	0
E(X) =	218.5358	226.9875
V(X) =	1282.503	5179.534
VARn	0.0265	0.0958

				MEANn=	5.3737	5.3770
				VAR(Xn)=	1282.503	5179.534
	MAXIMUM DAILY EFFLUENT LIMIT =				~~314.928~~	~~444.476~~
	AVERAGE MONTHLY EFFLUENT LIMIT =				**281.881**	**360.008**
Intermediate	**281.88145**	**277.446652**			Summer	Winter
Calculations:	**360.00821**	**345.376479**	**Observed**	**Ratio (x:1):**	**1.41**	**1.94**
			Resulting	Max Daily	397.452847	698.4159266
			Proposed Daily Limits:		**400 lbs/day**	**700 lbs/day**
			Proposed Monthly Limits:		**282 lbs/day**	**360 lbs/day**

DAILY DATA ANALYSIS OF PERFORMANCE-BASED EFFLUENT LIMITS FOR AMMONIA

EXCEL PERFORMED THE LOGNORMAL TRANSFORMATIONS
AND CALCULATED THE TRANSFORMED MEAN AND VARIANCE

	SUMMER	WINTER
LOGNORMAL TRANSFORMED MEAN =	5.3355	5.2409
'LOGNORMAL TRANSFORMED VARIANCE =		0.0380
NUMBER OF SAMPLES/MONTH FOR COMPLIANCE MONITORING =		
AUTOCORRELATION FACTOR(ne)(USE 0 IF UNKNOWN) =		0
E(X) =	211.5625	204.3172
V(X) =	1735.466	7123.276
VARn	0.0032	0.0141
MEANn=	5.3529	5.3126
VAR(Xn)=	144.622	593.606

MAXIMUM DAILY EFFLUENT LIMIT =				326.740	475.392
AVERAGE MONTHLY EFFLUENT LIMIT =				231.345	244.396
Intermediate	231.9076	231.3451	Summer	Winter	
Calculations:	246.6775	244.396	**RATIO:**	**1.41:1**	**1.94:1**

NOTE: The larger database of monthly averages (previous spreadsheet) sets monthly limits.
NOTE: This analysis of daily data was used to establish the ratio of Max daily to Monthly Average limits
NOTE: This was done because the last two years have been significantly below normal flows.

APPENDIX D--RESPONSE TO COMMENTS

The City of Centralia provided comments on the Draft permit on September 11, 2001.

The cover letter reflected some (un-numbered) concerns, and contains three attachments. The first attachment contained the City's detailed comments on the permit and fact sheet. This was in the form of a two page narrative addressing three issues, and six more pages of comments numbered 1-56. All these comments will be addressed below. The second attachment is the City's previous comments on the permit and fact sheet from entity review, and the third attachment is the City's consulting Engineer's comments on the draft permit and fact sheet from the entity review period. These last two attachments appear to have only been included because they are referenced in City's comments on the public notice version of the draft permit. Therefore, responses to these comments are only included where they are referenced in the comments on the public notice version of the permit.

Comments:

Cover Letter:

USE OF THE DRAFT MODIFIED 1996 NPDES PERMIT: The City expresses the position that the Court requirement to process modifications to the City of Centralia (City) NPDES permit for their Wastewater Treatment Plant is not satisfied by the including the requirements of the Consent Decree in a permit reissuance. The City contends in their response to the draft permit that the draft modified permit which was included as an appendix to the Consent Decree showing how the 1996 permit would be modified must be issued as it stood at that time to satisfy the Consent Decree. We believe that the agreement and the court's intent is satisfied by including the specific agreements of the consent decree in a revised permit (as opposed to issuing the example permit that incorporated these agreements). Notwithstanding the expression of this position here, the draft permit attached to the consent decree included in final limits 85 percent removal requirements for BOD and TSS year round. The City was strongly opposed to this in their response to comments, claiming that this standard was impossible to meet.

The process of signing a consent decree took several years. By the time the process was completed, the Department had already received from the City an application for a new permit, and shortly after, the City's 1996 NPDES permit expired and was administratively extended. The Department acted on the City's request to renew the permit and processed a permit renewal, incorporating within it the modifications required by the Consent Decree. Rules for administering the NPDES permit program do not allow modification of a permit after it's expiration even if it is administratively extended.

The proposed permit renewal also serves the function of incorporating requirements for a new facility that had been defined in plans submitted by the City. These plans were developed and approved after the negotiation of the consent decree and the incorporation of conditions applicable to a new facility. Such requirements are beyond the scope of implementing the Dissolved Oxygen (DO) Total Maximum Daily Load (TMDL), and therefore, are outside the scope of the Consent Decree. The Consent Decree acknowledges that it is limited in scope to implementation of provisions arising from the DO TMDL, and that the Department would exercise it authority to implement such laws and regulations based on the normal NPDES permit process. Specifically of note is the text of Section XVII, paragraph 27. This paragraph states:

> "27 - This Consent Decree shall not be construed to be an NPDES permit, nor a modification of any plaintiff's existing NPDES permit or any renewals thereof or amendments thereto. This Consent Decree shall not relieve any plaintiff from any obligation to comply in full with any federal, state or local law, provided, however that the dischargers' compliance with this Decree shall constitute their compliance with requirements arising under the TMDL for the Chehalis River. Any new permit, or modification of an existing permit, must be complied with in accordance with applicable Federal and State law. The pendancy or outcome of any proceeding concerning the issuance, reissuance, or modification of a discharge permit shall neither affect nor postpone a party's obligations under this Consent Decree."

There are specific dispute resolution procedures for when one party feels another is not adhering to its obligations under this Consent Decree. If the City truly believes that the proposed Draft NPDES permit does not comply with the Consent Decree, it should notify the Department that there is a dispute, and then failing resolution by negotiations and after 30 days, serve on the Department a statement of position. These steps have not been taken.

With the establishment of the design and capacity rating of the new facility, requirements specific to the new facility were included. These are requirements that would apply to any new facility. The draft permit does not add any more stringent requirements arising from the DO TMDL, however, many rules and regulations are applied through the NPDES permit system. While the proposed permit includes conditions not included in the 1996 permit, limits arising from the Dissolved Oxygen TMDL that are more stringent than would otherwise apply to this discharge have not been changed.

REQUIRED REMOVAL RATES: The enclosures to the City's response letter to the Draft NPDES permit included discussion of three major points. The first was a request for a lower percentage removal for BOD and TSS for the new wastewater treatment plant. The Department, in accordance with section 173-221-050(4), may grant alternative limits under certain conditions. However, the less concentrated influent can not be the result of excessive infiltration and/or inflow (I/I), and there can not be any sewer overflows. Where the less concentrated influent is the result of excessive I/I, then the exceptions to the 85 percent removal requirement can only be granted in conjunction with a schedule for removing the excessive I/I.

Previous analyses have determined that the facility's effluent meets the federal definition of having both excessive inflow and excessive infiltration. These standards are per the EPA pamphlet "I/I Analysis and Project Certification." Reference pages V-5 and V-32, 33 of the Department of Ecology Permit Writer's Manual as amended August 2000. The City has previously claimed that it has removed all excessive I/I that can be economically removed. Based on Federal Guidance, this means that it is more economical to construct the facility that will achieve 85 percent removal of the more dilute wastestream than remove the I/I from the collection system.

In the aforementioned pamphlet there is a section titled "I/I Cost-Effective Analysis." This section contains a chart that shows how for a given removal rate, the I/I reduction efforts will reach a level at which it is cheaper to treat the I/I at the treatment works than to remove it from the system. This chart is premised on the choice of a given treatment standard. The Department maintains that the standard that must be applied is the secondary treatment standard of 85 percent removal and 30 mg/L for the pollutants measured by the BOD5 and TSS tests. Treatment costs above those required to treat the sewage to a lower concentration than 30 mg/L compensate for the fact that the effluent is weaker in strength.

This is further clarified in the Department of Ecology Permit Writer's Manual. This document states on page V-32, "When computing the costs of transporting and treating the sewage, include the present cost (capital and operation and maintenance) of whatever technology would be necessary to achieve the limits allowed by Section (173-221)-040 or 050(1) or (2) whichever is applicable." In this case, the treatment plant is subject to 173-221-040, and the standard is 85 percent removal.

Any overflow of sewage is also deemed excessive I/I by the Department interpretation. Identification of overflow points by the City of Centralia in its Permit Application would prohibit alternative limits in accordance with the Department policy and regulation. This is in accordance with 173-221-050(5). With the construction of the new pump station, this overflow potential has been claimed to have been alleviated, and the Department has concurred with this assessment.

Following are definitions in federal regulation related to this issue:

- 40 CFR 2005(b) (16) *Excessive Infiltration/Inflow.* The quantities of infiltration/inflow which can be economically eliminated from a sewer system as determined in a cost-effectiveness analysis that compares the costs for correcting the infiltration/inflow conditions to the total costs for transportation and treatment of the infiltration/inflow. [See §§ 35.2005(b) (28) and (29) and 35.2120.]

- 40 CFR 2005(b) (20) *Infiltration.* Water other than wastewater that enters a sewer system (including sewer service connections and foundation drains) from the ground through such means as defective pipes, pipe joints, connections, or manholes. Infiltration does not include, and is distinguished from, inflow.

- 40 CFR 35.2005(b) (21) *Inflow.* Water other than wastewater that enters a sewer system (including sewer service connections) from sources such as, but not limited to, roof leaders, cellar drains, yard drains, area drains, drains from springs and swampy areas, manhole covers, cross connections between storm sewers and sanitary sewers, catch basins, cooling towers, storm waters, surface runoff, street wash waters, or drainage. Inflow does not include, and is distinguished from, infiltration.

- 40 CFR 35.2005(b)(28) *Nonexcessive Infiltration.* The quantity of flow which is less than 120 gallons per capita per day (domestic base flow and infiltration) or the quantity of infiltration which cannot be economically and effectively eliminated from a sewer system as determined in a cost-effectiveness analysis. [See §§ 35.2005(b)(16) and 35.2120.]

- 40 CFR 35.2005(b)(29) *Nonexcessive Inflow.* The maximum total flow rate during storm events which does not result in chronic operational problems related to hydraulic overloading of the treatment works or which does not result in a total flow of more than 275 gallons per capita per day (domestic base flow plus infiltration plus inflow). Chronic operational problems may include surcharging, backups, bypasses, and overflows. [See §§ 35.2005(b)(16) and 35.2120.]

The City's evaluation (Section 2.5.1 of the City's approved Facility plan) acknowledges that their I/I would not meet the standards of paragraphs (28) or (29) above. The plan concludes that the City's I/I should nevertheless be deemed not to be excessive I/I under paragraph (16) because "Cost analysis indicates that it is more cost-effective to convey and treat the I/I than to remove I/I" (page 4-40 of the approved facilities plan). This is an appropriate argument only if the POTW is designed to treat the weaker influent to a standard of 85 percent removal.

We have presumed that the City was working with a similar understanding, and found it more economical to treat the high volume of wastewater than reduce the levels of I/I in the collection system to obtain the same standard of treatment. We presumed the cost analysis considered that as less I/I work is performed, treatment costs to meet the 85 percent removal rate increased, and that as more I/I work is performed, the additional treatment costs to meet the 85 percent removal criteria, and costs for component based on sizing both decrease. This is an appropriate "cost-effective analysis" and what we presumed was completed. An analysis that finds that it is cheaper to allow I/I to remain in the system and get an exemption to the removal rate requirement to discharge a greater amount of pollution into the receiving environment is not an appropriate "cost-effective analysis."

Within the approved Facility Plan, the only mention of requiring a lower removal rate we could locate was in section 2.5.1 which states that "Exemption from percentage removal requirements for biochemical oxygen demand (BOD) and total suspended solids (TSS) may also be granted. The cost-effectiveness of I/I removal is evaluated in chapter 4." Our review of Chapter 4 found no instances where it identified that a lower removal requirement would be needed to justify not performing the identified I/I work. Our presumption (reflected in the permit attached to the consent decree) has been that treatment to secondary standards (both concentration and removal rate) was anticipated.

Typical examples of when the Department would have the authority to deviate from the 85 percent removal rates are such as: A.) A POTW is receiving a significant portion of its wastewater from Septic Tank Effluent (STE) systems which discharge a wastewater with significantly lower strength. Because of these STE systems, the POTW would have to treat the combined wastestream to more than 5 mg/L below the 30 mg/L standard to achieve 85 percent removal. In this case, an adjustment may be made based on the number of STE systems, their effluent strength, and the removal expectation for that wastestream. B) The POTW receives wastestreams weak in BOD and/or TSS from an industrial source (without compensatory high strength industrial wastewater). The wastestream has pollutants amenable to treatment and is appropriate to discharge to the POTW. Subject to the restrictions of 173-221-050(4) WAC, the POTW would be eligible for a reduction to the 85 percent removal requirements in this case as well.

The federal definition of excessive I/I was developed to allow that rather than removing I/I to below levels defined for "Nonexcessive Inflow" and "Nonexcessive Infiltration," the POTW could choose to treat the wastewater to secondary standards (as defined in 40 CFR 133.102). These include meeting the 85 percent removal rate requirement. In so doing it would then be deemed to not have "Excessive Inflow/Infiltration" and could qualify for participation in the Federal grants and loans programs. Exceptions similar to the state's regulation are found in 40 CFR 133.103(d). This section also requires the determination that the wastewater is not the result of excessive I/I prior to adjustment of the required removal rate.

State regulations go beyond federal statute in requiring [173-221-050(4) & (5)] several additional items. The Permittee must identify effluent concentrations consistently achievable through proper operation and maintenance. The City presumed that the new treatment works will reliably meet secondary treatment standards of 30 mg/L. The Department accepts that a 20 mg/L effluent concentration is consistently achievable for BOD and TSS. The Permittee is also to complete an analysis of whether seasonal effluent limits are more appropriate than year-round limits. In this case, the Department accepts through our own analysis that the "wet season" is the only appropriate season for this deviation from 85 percent removal.

The City cites flows from two particular months as a basis for needing the exemption. That level of analysis does not fulfill the requirement for an analysis of the months for which this exception is needed. Because this was not completed, we performed a rigorous analysis of the last nine years of BOD and TSS

data. Our result show conclusively that the POTW will need this exception to the 85 percent removal rate requirement if historical trends continue.

The Permittee also must have an I/I reduction program with the goal of eventually achieving the 85 percent removal requirement. This program must be incorporated into the permit to fulfill this regulatory requirement. However, the City's approved Facility Plan suggests that it is more cost effective to treat the effluent than remove I/I and therefore we do not have a proposal for I/I reduction necessary for the POTW to meet the 85 percent removal requirement.

The second issue of the narrative review comments is the Discharge Outfall Design Memorandum. The City notes that it will soon be submitting a design summary memorandum for the Department review. This is important new information to the Department, and has a bearing on permit conditions for evaluating what can be done to reduce temperature effects on the river. This data has not been received as of March 15, 2002. Therefore, some determinations of appropriate permit conditions could not be completed. This means that potential metals limits would have to be evaluated in the next permit cycle. Because the effluent characteristics will be different from the new treatment process, there was already a basis for deferring this analysis. Permit conditions require this analysis and the sampling that will enable this determination to be made in the next permit reissuance.

The third issue of the narrative review comments is the Chehalis River Temperature TMDL. The comment requests that the requirement to study alternatives to comply with the temperature TMDL and measure temperature in the Chehalis River be deleted. The second issue, measurement of temperature, is quite important to ensuring that decisions of the Department are made with good information and we feel we must retain this requirement. In regards to the first issue, the City of Centralia has now completed design of its facility. To the maximum extent possible, we have encouraged the City to exercise foresight in analyzing temperature reduction opportunities during the design of the new facility and to proceed with the understanding that retrofitting solutions later could be much more costly. The opportunity to integrate additional features into the design no longer exists. Therefore, we are deleting the special temperature study requirement in the permit.

In addition to the above issues the letter included 56 numbered comments. These comments are reviewed using the same numbering system for clarity. Where these comments refer to earlier numbered comments on the entity review, our reference to an entity review comment number will be preceded by 'ER.'

1. *Comment*: The more restrictive ammonia limits of the draft permit will result in permit violations. *Response*: The City has had recent difficulty meeting concentration based interim ammonia limits contained in the permit that was exhibit B to the consent decree. The Department is prohibited from increasing the interim limits under 40 CFR part 122.44(l) commonly known as the "anti-backsliding" provisions of the Clean Water Act. However, the limits may be expressed in an equivalent, but more appropriate, form. The consent decree's attached permit would have limited monthly average ammonia concentrations to 13 mg/L in winter, and 30 mg/L in summer, and maximum daily concentrations of ammonia to 35 mg/L in winter, and 22 mg/L in the summer. Interim ammonia limits, however, were not stipulated in the text of the consent decree, and therefore the Department, at the behest of the City, exercised latitude in proposing permit limits in the entity review version of the permit that limit the mass of ammonia discharged rather than the concentration and recalculated a performance basis for a limit on a mass basis.

   This performance basis was the 95th percentile compliance of a limited data set. The City responded that the factual basis for this analysis was inadequate in not using a larger data set. The Department concurred that in accordance with our policies, a larger data set should have been

used. When we did the more rigorous analysis, the permit limits actually became more stringent than that proposed in entity review. We are obliged to use the results of the more thorough analysis. By analysis of previous data, the POTW should be able to meet these limits 95 percent of the time as indicated by the larger data set.

We believe the new mass limits will result in a reduced incidence of non-compliance. We have, however, previously reflected a commitment to retain the concentration based interim ammonia limits (Exhibit B to the consent decree) barring concurrence with proposed mass based limits. While the public notice comments did not endorse the proposed mass based limits, and in fact took the position that all conditions of the 'Exhibit B' permit should be retained, later concurrence from the City was verbally expressed by the City. Therefore, rather than to restore the concentration based ammonia limits (an indeed all the interim limits of S1.A) we will continue with the interim limits in the public notice version of the permit.

2. *Comment*: The mass limits should be calculated as the monthly concentration limit in the draft permit (exhibit B to Consent Decree C96-5968 RJB) times the maximum flow limits in the permit. *Response*: Mass limits were derived from the analysis of the 95th percentile mass discharge rate for the particular season (summer or winter) over the previous permit cycle. The proposed methodology would not be consistent with our permitting procedures, and is therefore inappropriate.

3. *Comment*: Footnotes b, c, and d of S1.A are incorrect. *Response*: Footnotes b and c were corrected to match the text of the table (35 mg/L vs. 30 mg/L). Footnote d was found to already be consistent with the table and our intentions.

4. *Comment*: The monthly average mass limit of 617 lbs/day BOD_5 and TSS is incorrect and should be 650 lbs/day. *Response*: The draft permit of Exhibit B of the Consent Decree anticipated a much larger facility being constructed (see Section S4.A – Final Design Criteria). Instead a smaller phased facility was proposed and approved. In the draft permit, the limitations of the TMDL were more limiting than secondary treatment standards. When designs were approved for the facility, the capacity had been reduced enough so that the TMDL limitations were no longer the most stringent limit. Here is a recap of how limits were derived:

   TMDL Limits for BOD_5 and TSS: The Consent Decree expresses BOD and TSS loading limits as maximum day limits for three situations: Summer with flows under 200 cfs = 826 lbs/day, Summer with river flows over 200 cfs = 926 lbs/day, and winter = 2,530 lbs/day. These are the same for both BOD and TSS. Note whereas concentration limits are expressed as both daily maximum (30 mg/L) and monthly average concentrations (20 mg/L), the loading limits were expressed only as DAILY MAXIMUM LIMITS. These were important additional requirements, but do not directly affect the monthly average and weekly average loading limits other than establishing a not-to-exceed limit.

   REMOVAL RATE FOR BOD & TSS – 85 percent removal: The draft permit sent to public notice had taken the rated capacity as 4,180 lbs/day (see fact sheet p.7 for a discussion of why). Allowance of 15 percent (85 percent removal requirement) equated to allowing 627 lbs/day as a monthly average.

   EQUIVALENT LOADING AT RATED CAPACITY FOR BOD & TSS – Upon review, we found the draft permit erroneously used the >200 cfs flow limitation of 3.7 MGD for both low flow and normal dry season calculations, yielding the proposed limits in S1.B.5 of 617 lbs/day for

both situations. Had the appropriate low flow restriction been used, the limit for when flows are less than 200 cfs would have been: 20ppm * 8.34lb/gal * 3.3MGD (flow limit) or 550 lbs/day. The limits for when summer when river flows are over 200 cfs were calculated as 20ppm * 8.34 lb/gal * 3.7MGD (flow limit) or 617 lbs/day as was reflected in the draft permit that went to public notice.

The City's comment led us to review the statement of basis for the permit modifications proposed with the Agreed Order (page 7). The methodology explained was to multiply the flow limits times concentration limits and a conversion factor (8.34 lb/gallon). Inexplicably, 3.5 MGD and 3.9 MGD were used as the dry weather flow limits instead of the 3.3 MGD (flow <200cfs) and 3.7 MGD (flows >200 cfs) limits which were ultimately made it into the consent decree (page 6 lines 10 and 11). This resulted in proposed modified permit limits (of Consent Decree Appendix B) of 583 lbs/day and 650 lbs/day respectively.

This brought to light that the flow limits of the Consent Decree (3.3 MGD and 3.7 MGD) were not directly translated to mass limits within the body of the consent decree. The translation of daily flows to BOD and TSS limits is not specifically addressed in the consent decree. Upon review, the Department accepts that City's position that the Statement of Basis for the modified permit which was Exhibit B to the consent decree expresses the intent of how this translation was to be done. We accept that this methodology is related to the DO TMDL as flow is not otherwise limited. Therefore we accept that the methodology of using the 3.5 and 3.9 MGD flow rates to establish mass limits (mistake or intent) was part of the consent decree process. In the dry weather period this would result in limits of 583 lbs/day (<200 cfs) and 650 lbs/day (>200 cfs) at the allowed flows and concentrations in the permit.

However, mass limits for BOD and TSS are the lesser of the allowed flow at maximum allowed concentration (above) and 15 percent of the rated loading capacity. A smaller POTW capacity was constructed than was envisioned when the consent decree was signed. This merited a re-evaluation of this latter criteria as well. In the case of TSS limits, this was found to be more restictive for dry weather flows >200 cfs. In this case the 4,200 lbs/day of TSS capacity at 85 percent removal yields a limit of 630 lbs/day. The 4,400 lbs/day BOD capacity translates to a BOD limit of 660 lbs/day which is less limiting than the 650 lbs/day in the previous paragraph. See City comments 6, 16, 35, and 36 for additional discussions of this topic.

To summarize, for river flows less than 200 cfs, the previously proposed limit of 617 lbs/day is replaced by 583 lbs/day for both BOD and TSS. At river flows above 200 cfs, the more restrictive limits are 630 lbs/day for TSS and 650 lbs/day BOD_5 (as opposed to 617 lbs/day for both in the public notice version of the permit). These changes are reflected in S1.B under BOD and TSS Monthly Average limits.

5. *Comment*: There should only be a daily maximum permit limit for ammonia. *Response*: The Department implements the NPDES permit program of 40 CFR Part 122. Rules for calculating NPDES permit conditions for continuous discharges describe requirements for how permit limits are expressed. Specifically, 40 CFR part 122.45(d) states: "…all permit effluent limitations, standards, and prohibitions, including those necessary to achieve water quality standards, shall unless impracticable be stated as: (1) Maximum daily and average monthly discharge limitations for all dischargers other than publicly owned treatment works; and (2) Average weekly and average monthly discharge limitations for POTWs." These rules for POTWs have been further clarified in that POTW limits for toxic pollutants should be expressed as maximum daily and

average monthly limits. Ammonia is a toxic pollutant, and thus limits should be expressed as daily maximum and monthly average concentrations.

Also, under 122.45(f) Mass Limitations: "(1) All pollutants limited in permits shall have limitations, standards, or prohibitions expressed in terms of mass…" (several exceptions are then listed) and "(2) Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the Permittee to comply with both limitations." The establishment of monthly average limits on concentration and mass are therefore required under our normal permitting process. Monthly permit limits were not included in the Consent Decree 'Exhibit B' draft permit for potentially numerous reasons. Page 46 of the permit fact sheet shows the derivation of limits for ammonia for future conditions that follows our rules and procedures for developing such limits.

6. (also 4, 16, 35, 36) *Comment*: The mass limits for BOD and TSS have been greatly reduced from those in the Consent Decree's Exhibit B – Draft Modified NPDES Permit for the City of Centralia. *Response*: The reduction in the allowable loadings are directly related to the decrease in the capacity of the POTW to be constructed versus what was proposed by the Permittee at that time (reference S4.A of that draft modified permit and the statement of basis). The POTW described in that permit had a BOD capacity of 8,700 lbs/day and a TSS capacity of 8,500 lbs/day. If that facility had been constructed, the winter mass limits (15 percent of these numbers) would have been 1,305 lbs/day and 1,275 lbs/day, respectively, as shown in the Draft Modified NPDES Permit. Given the capacity of the design that was submitted and approved was only 4,180 lbs/day for BOD_5 and TSS, the winter monthly mass limits were only 15 percent of this or 627 lbs/day. Based upon our concurrence with the City's public review comment #16, these capacities were re-evaluated and increased to 4,400 lbs/day for BOD_5 and 4,200 lbs/day for TSS. The limits are now consistent with the City's own estimates of the capacity of the new facility.

7. *Comment*: There should not be weekly limits for BOD, TSS, ammonia, and fecal coliform as there are no corresponding limits in the draft of Consent Decree Exhibit B. *Response*: See the response to Comment 5 for the regulatory citations. In summary, however, the Department included limits for BOD and TSS based on the capacity of the POTW being constructed. Based on the City's comment #16 these were slightly increased to reflect the capacities the City believes appropriate to their new facility. The Department generally includes weekly and monthly limits for conventional pollutants and daily and monthly limits for toxic pollutants. These were presumably not included in the Consent Decree draft permit as 1) they were not necessary to meet the DO TMDL, and 2) there would not have been enough information known about the facility being constructed to derive these limits. For ammonia, the monthly ammonia limit was added to protect against toxicity at the edge of the allowable mixing zone. This is unrelated to the DO TMDL which limits ammonia based on how much oxygen depletion it causes in the receiving waters. For fecal coliform, the weekly average limit will be satisfied by a daily maximum limit of the same value, and therefore, the weekly average limit will be stricken, and a daily maximum limit of 400/100 mL preserved.

8. *Comment*: The monthly average ammonia limit of 14.6 mg/L is not prescribed in the consent decree and therefore should not be included in the permit. *Response*: Ammonia is a pollutant with both near field and far field effects. In the far field it affects the DO of the receiving environment, and therefore, the DO TMDL limited the total amount of ammonia that could be discharged. Ammonia is also a toxic pollutant that can cause toxicity at the edge of the allowable mixing zone. In this case, the toxicity of ammonia at the edge of the allowable mixing zone

drives a limit of 14.6 mg/L as a monthly average. In writing permits, we must include the more stringent of the two limits. In this case, since there was no monthly ammonia limit set in the consent decree, the water quality based limit was used for the monthly average ammonia limit. See pages 18-22 of the fact sheet for a derivation of mixing zone ratios for the future site, and a lengthier discussion of the ammonia issue.

9. *Comment*: The fecal coliform limit in the Consent Decree draft permit was 400/100 mL, and no weekly limit was proposed, therefore the weekly limit should be stricken. *Response*: For Fecal Coliform, the weekly average limit will be satisfied by a daily maximum limit of the same value, and therefore, the weekly average limit will be stricken, and the more stringent daily maximum limit of 400/100 mL added at the Permittee's request.

10. (see also 24, 29, 30) *Comment*: The only required schedule should be the final compliance date in the Consent Decree. *Response*: The draft permit attached to the consent decree establishes quite clearly in section S1.D that: "The Department of Ecology has determined that a schedule will be required to ensure final compliance with the Water Quality-based effluent limits in the shortest practicable time." And "Therefore, the Permittee shall submit a schedule to the Department for approval by June 30, 1999, that achieves full compliance with final effluent limitations in accordance with paragraph V.4.C.(iv) of Consent Decree No. C96-5968 RJB. NPDES Permit Number WA0020982 for the City of Centralia will be modified to include the approved schedule for compliance with final effluent limitations." The Department received a letter on June 10, 1999, that the City would comply with the schedule in the Consent Decree. This did not satisfy the requirement for annual increments of progress. The Department responded on August 12, 1999, noting that the schedule of figure 7-1 of the approved facility plan would be incorporated as the schedule.

The basis for this position was that NPDES permit rules at 40 CFR 122.41(l)(5) *Compliance Schedules* requires that "Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date." Also, 40 CFR 122.47 *Schedules of Compliance* Section (3) *Interim Dates* requires "Except as provided in paragraph (b)(1)(ii) of this section, if a permit establishes a schedule of compliance which exceeds one year from the date of permit issuance, the schedule shall set forth interim requirements and the dates of their achievement. (i) The time between interim dates shall not exceed one year…" and "(ii) If the time necessary for completion of any interim requirement (such as the construction of a control facility) is more than one year and is not readily divisible into stages for completion, the permit shall specify interim dates for the submission of reports of progress toward completion of the interim requirements and indicate a projected completion date."

Therefore, we developed (in the public notice version of the permit) milestone dates from the grant and loan contract which was a schedule that accomplished the requirements of the Consent Decree within the time allotted by that document. We included these milestones in Section S1.D. Our basis was that because the Permittee has failed to achieve consistent compliance with all permit limits of the consent decree, the construction schedule required completion by the soonest date (January 2005) rather than the maximum time allotted under the Consent Decree (January 2008). The City is on track to achieve a January 2005 compliance date. Upon review of the situation (plans and specifications have been approved and funding for the POTW secured), the demonstrated good faith efforts and return to compliance by the POTW allowed us to replace the milestone dates with annual progress reports culminating with a certification of completion of construction and final compliance by the date specified in the Consent Decree.

11. *Comment*: The permit should retain once per day temperature monitoring, and it should define "early morning" and "late afternoon." *Response*: When the draft permit was developed, there was not a temperature TMDL being proposed to EPA for this stretch of water. In writing of the permit it was discovered that differences in temperature in the receiving water demand sampling in the early morning and late afternoon. As for defining when this is required, putting such in the permit would make it overly prescriptive. We recommend monitoring ideally be at 6:00 AM for the morning and 6:00 PM for the late afternoon/evening but we will accept variation within two hours of these times. We wrote the permit to specifically allow the POTW to use an automated temperature recording device (data logger) to collect this data provided that redundancy is provided in case of failure. This will reduce staff monitoring requirements. We recommend a minimum once per week data dump to ensure that potential failure of such a device will not result in a loss of data for a longer period than this.

12. *Comment*: Chlorine will not be used for disinfection at the new facility, and it is requested to be deleted from final permit limits. *Response*: In response, we deleted chlorine limits from the Final Effluent Limits (Dry Weather). They already had been deleted from the Final Effluent Limits (Wet Weather). Since chlorine is not used for disinfection or identified for process (filamentous) control in the new facility where it could result in measurable effluent concentrations, this permit limits is not needed.

13. *Comment*: The Permittee does not wish to monitor ambient temperature and was under the impression that this would not be required to show compliance. *Response*: The final TMDL now clearly seems that it will simply require compliance with Water Quality standards. Demonstrating compliance with the water quality standard for temperature could be done by the Permittee electing to assume the worst case effluent temperature. This would be a temperature of 17.7 degrees C in the ambient environment. At this temperature, the POTW would be within the Water Quality standard (and the TMDL limit) by discharging at a temperature greater than 19.7 degrees C at the future proposed discharge location (CMZ = 6.6:1). The TMDL presumed this would be the method of assessing compliance, and therefore, in discussing the TMDL, we noted that the TMDL did not presume ambient monitoring for temperature was needed for assessing compliance. However, because the effluent temperature routinely exceeds 19.7 degrees during warmer months, we assumed the Permittee would rather take actual ambient measurements of temperature and calculate compliance by adding 2.0 degrees to the ambient temperature when the ambient temperature is 17.7 degrees C or higher. The alternative would be to impose a maximum temperature limitation of 19.7 degrees C on the Permittee, and not require ambient monitoring. This permit requires sampling of ambient and receiving waters as the best method to demonstrate compliance with the temperature standard and best determine what if any additional treatment steps are required should the temperature standard be found to not be met.

14. *Comment*: The footnote 'e' on page 11 of the draft permit should be stricken because continuous monitoring is not required by the permit. *Response*: The note states: "If continuous data logging probes are used, two probes shall be used to ensure integrity of the data, and the average and maximum temperatures for all days for which the data has been collected shall be reported." Upon further consultation, the minimum temperature was added to this. It is our position that this wording does not require continuous monitoring, but only expands the Permittee's range of options for collecting useful data in an expedient manner. The Permittee is by no means required to use a data logging probe, but would allow either a continuously monitoring or discretely monitoring probe in lieu of manually collected data.

15. *Comment*: Sludge should be changed to "biosolids" where it appears in the permit. *Response*: Sewerage sludges meeting specific requirements of 40 CFR Part 503 are considered "biosolids." We certainly hope that all sludges meet Class A pathogen and vector attraction requirements and Exceptional Quality (EQ) biosolids pollutant concentration limits. Since this monitoring is not dependant upon whether the sludges qualify as biosolids, the term sludge(s) has been used in this document. The monitoring is not dependant upon the sludges meeting any biosolids quality requirements.

16. *Comment*: The influent design capacity of the Phase 1 facility is 4,400 lbs/day BOD_5 and 4,200 lbs/day TSS. *Response*: This capacity rating is close enough to our independent estimates of capacity (4,180 lbs/day BOD and TSS based on the Department's Criteria for Sewage Works Design) that we can accept this assessment as valid and defensible. This means that to achieve 85 percent removal rate at design capacity, the POTW can discharge no more than 660 lbs/day BOD_5 and 630 lbs/day of TSS. The permit limits in the permit which was issued were revised to reflect this capacity rating. The permit, therefore, now reflects acceptance of the City's own estimate of BOD_5 and TSS capacity.

    Comment: As another part of comment 16, the City also desired to change S4.A to reflect these loading capacities. *Response*: S4.A.2 was also modified by replacing 4,180 with 4,400 for BOD_5 and 4,200 for TSS. This also resulted in modifications to S1.B and S1.C.

17. *Comment*: The flows and loadings of S4.A. 2&3 should not be referred to as "Ultimate Design Flow and Loadings Authorized Under the TMDL." *Response*: Consent Decree 96-5968 RJB requires the Department to process certain modifications to the Centralia NPDES permit. Section V on pages 5 and 6 specifically identify the changes that must be processed. One such modification is listed as "Plant Flow, daily maximum." Under this heading, it shows "When flow is < 200 cfs – 3.3 mgd" and "When flow is > 200 cfs – 3.7 mgd." The Department is bound by this requirement, and its omission in the example modified permit of Exhibit B of this Consent Decree does not justify not including flow limits as a required modification to the City's permit. The design basis in S4.A was modified to conform to the City's estimates of capacity which were close to the Department's estimates, and BOD and TSS limits in S4.A.3 were removed. The title of Section S4.A.3 will be changed from "Limits on Ultimate Design Flow and Loadings Authorized Under the TMDL" to "Limits on Flow of Consent Decree C96-5968 RJB Incorporated by Order."

18. *Comment*: Section S4.E has been significantly changed from that prescribed in the Consent Decree and its Exhibit B draft modified permit. *Response*: The Infiltration and Inflow Reduction Program section does not require additional activities for correction of I/I. It does, however, require reporting of information important to making determinations of whether ongoing maintenance is effective in keeping I/I to current levels, and whether the City has a program that, together with POTW improvements, will achieve the 85 percent removal rate requirement. This will also help us project the date upon which that will occur. The City has requested a lower removal rate requirement, and the data that S4.E required to be reported is critical to assessment of the progress in reducing I/I to the point where 85 percent removal can reliably be achieved over all months. Also, it should be noted that here, as in many other places, the City expresses the opinion that wording of Exhibit B "Draft Modified NPDES Permit for the City of Centralia" is prescribed. The Department does not concur with that, and it seems clearly evident in later sections of the consent decree (Section 27 especially) that only the provisions specifically stipulated in this Consent Decree are binding. The Department has changed the removal requirements for BOD and TSS from 85 percent (in the draft modified permit cited above) at the

City's request. These limits now allow removal rates in the wet season to be 75 percent for BOD and 70 percent for TSS. The requirement to report progress in eliminating I/I is essential to ensuring that the City is adhering to the schedule for meeting the 85 percent removal rate. Without this reporting requirement, the Department could not allow alternate removal rates for BOD and TSS.

19. *Comment*: Why are Industrial Users being required to be reported annually instead of once per permit cycle? *Response*: There has been an increase in industrial activity, and a need for a greater presence by the wastewater treatment plant staff in seeking out industries discharging to the POTW. The permit conditions will be changed to require only one complete survey with annual updates.

20. *Comment*: Request that the priority pollutant scan requirement be deferred until March 31, 2002. *Response*: Upon review, the requirement to conduct a priority pollutant scan was reduced from annually to one event and deferred until the first summer after operation of the new POTW. This will give us good information in time for the next permit reissuance. The permit requires semi-annual sampling for metals and cyanide because of low mixing zone ratios in the receiving stream. The sludge monitoring is required because it allows a better understanding of industrial effects at the POTW, and is representative of a longer period of operation. Hopefully this clarifies the expected frequency and scope of the monitoring. S9.B.1 clarifies that priority pollutant samples shall be collected between June 1, and August 30, of each year, and that the additional analysis shall be collected between December 1, and February 28, of each year.

21. *Comment*: Acute toxicity requirements should be deleted, principally because they were not in the Draft Modified NPDES Permit of Exhibit B to the Consent Decree. *Response*: The basis for these requirements are well detailed in the fact sheet on pages 24 and 25. The reason that this requirement was not in the draft modified permit is because that permit, issued in 1996, did not intend to include all requirements of a new facility. Changes to that permit to incorporate consent decree requirements naturally did not include all requirements applicable to a new facility either. These requirements are universally applied to all NPDES Permittees that meet certain screening criteria and must be retained.

22. *Comment*: The temperature TMDL is still not approved by EPA, and the City does not wish to sample the ambient environment. *Response*: The basis for permit conditions with respect to temperature is not dependant on the TMDL. The water quality standards require that point sources can only degrade a receiving stream by 0.3 degrees C, and the point of compliance for this standard is taken to be the edge of the chronic mixing zone. The TMDL proposed initially a more stringent standard, but the latest revision which is the Department's final TMDL (EPA still could challenge this – much as a Permittee could challenge a permit condition), but for our purposes it is final. This final TMDL has reverted to the water quality standards, and therefore, we would not be dependant upon a TMDL to establish that the limit for temperature at the new facility will be 2.0 degrees C over ambient when ambient temperatures are 17.7 degrees C or higher. This monitoring is necessary to obtain a baseline to see if this standard is being met by the POTW, and if not, what to do about it.

NOTE: COMMENTS 23 – 56 are on the fact sheet and therefore do not affect permit conditions. Because of this, less detailed responses were provided.

23. *Comment*: This comment in turn references comment #50 of the entity review. It asks, in the end, how ultimate loadings allowed by the TMDL could be higher than what the proposed new

facility can accommodate, since the new facility will be designed around the limits proposed in the permit. *Response*: The new facility is a phased facility which doesn't have the capacity to treat as much sewage as the facility proposed when the draft modified NPDES permit was developed.

24. *Comment*: The compliance schedule in the fact sheet should be the one in the Consent Decree. *Response*: After review this was allowed, but annual reports of progress were required. See the response to comment #10.

25. *Comment*: Is it not more reasonable to implement the Temperature TMDL after it is approved by EPA? *Response*: See the response to comment #22.

26. *Comment*: The city believes that the wording of the fact sheet "…errors and omissions identified in this review have been corrected before going to public notice…" is incorrect. *Response*: The entity review is only a factual review. The City may provide additional information or correct factual errors. Those comments that, in the opinion of the Department, addressed factual errors were addressed by modification of the permit. The vast majority of the comments from the City, however, related to the decisions made in the permit writing process. These comments were not addressed in the entity review period, and are being addressed in the public notice period.

27. *Comment*: The comment questions the basis of permit conditions relating to I/I work given the Consent Decree states that "no additional activities for correction of infiltration/inflow shall be required until such time as Centralia's new wastewater treatment plant is constructed." *Response*: See the response to comment #18. These requirements are necessary for gathering information on I/I levels, routine maintenance work that will keep I/I to current levels, and I/I work planned for after the facility is constructed.

28. *Comment*: The fact sheet should reflect that there are no comminutors, but rather a ¼ inch fine screen. *Response*: Noted.

29. *Comment*: The compliance schedule in the fact sheet should be the one in the Consent Decree. *Response*: As with comment 24; please see the response to comment #10.

30. *Comment*: The schedule of page 3, table 1 of the fact sheet is not prescribed by the Consent Decree. *Response*: As with comments 24 and 29, please see the response to comment #10.

31. *Comment*: Biosolids should not be monitored since the City has a biosolids permit. *Response*: Biosolids monitoring is necessary to ensure that industrial effects are not interfering with biosolids quality or treatment processes.

32. *Comment*: Changes to the POTW have increased the ammonia levels in the effluent, and this should be allowed for in interim limits. *Response*: The Department was not provided information as to why the City made these changes if they knew that they would effect effluent compliance with ammonia limits. If the Department had been informed that the proposed new solids handling processes were going to increase ammonia loadings to the river, it is less likely they would have been approved over (possibly more costly) disposal options that would not have impacted effluent quality. Furthermore, no data has been provided with this comment to quantify the magnitude of the impact that changing the sludge handling process and procedures had on the ammonia levels in the effluent. Therefore we must view this assertion as speculative. Barring

any evidence that the Department knew and agreed to this increase in effluent ammonia and that it actually has happened, it is not possible to act on the City's desires to increase ammonia limits.

33. *Comment*: The comment states: "The interim limits should be those prescribed in the consent Decree's permit." It also states that no I/I work was to be required before the new facility was constructed. *Response*: The I/I issue was discussed in the response to comment #18. We do not consider that planning for I/I reduction was required to be deferred by the consent decree, only activities. "Activities" are distinctly different from "Plans" as defined by the Department for funding purposes. Furthermore, to approve the request for alternate removal rate requirements at the new facility, the City must enter into an agreed order that will specify the timeline for I/I work needed to meet the 85 percent removal requirement. These projects will commence after the new POTW is constructed.

34. *Comment*: What years are the ammonia data from? Influent BOD is higher than 151 mg/L, and Effluent annual ammonia is higher than 11.7 mg/L. *Response*: The fact sheet clearly states that this is from the previous NPDES application. This characterization is important as it formed the basis of the NPDES permit interim limits. Table 4 compares the current and previous values for several parameters. Unfortunately, the comment does not provide the "current valid data" that the City would like recognized.

35. *Comment*: BOD_5 capacity of the POTW approved in the Facility Plan is 4,400 lbs/day. *Response*: This assertion is close enough to our estimates that we will accept it and this correction will be made to the permit and acknowledged here. The fact sheet will be appended by this response to comments but the text of the fact sheet will not be altered by public notice comments.

36. *Comment*: TSS capacity of the POTW approved in the Facility Plan is 4,200 lbs/day. *Response*: This correction will be made to the permit and acknowledged here.

37. *Comment*: The design standards for both BOD and TSS are incorrect in Table 5. *Response*: Agreed. See the responses to comments 6, 35, and 36.

38. *Comment*: The effluent limits for BOD_5 and TSS are significantly lower than those prescribed in the consent decree. This is in part because the deferral of I/I work should justify adjustment to the 85 percent removal rate, and the approved Facility Plan shows that the removal of I/I was not cost effective. *Response*: If all I/I that can be cost effectively removed has already been removed, the Department interprets this to mean it is cheaper to spend extra money to treat the wastewater (including the remaining I/I) to meet the same standards than to do more I/I work to achieve this goal. Based on this determination, the new facility should be able to meet the 85 percent removal requirement and no adjustment of the standard is required. The federal definitions of excessive I/I merely allow full participation in the grant and loan programs for POTWs that have excessive I/I if by their analysis it is cheaper to construct facilities to meet the same standards than further remove I/I to meet the standards of nonexcessive inflow and nonexcessive infiltration.

39. *Comment*: The consent decree did not set any wet weather removal rates. *Response*: The Permit attached to the consent decree required 85 percent removal during the wet weather period, but the Consent Decree does note that final limits will be as per WAC 173-221-050. This is the basis of several of the City's other comments on the permitting process. This regulation, however, does

not allow adjustment of removal rate requirements where there is excessive I/I. This topic has been previously discussed.

40. *Comment*: The City does not want to gather river temperature data for TMDL development purposes because this was not required in the Consent Decree. *Response*: The standards for temperature are "degradation based," meaning that they limit how much warmer than discharge can make the river. The effluent temperature allowed to be discharged by the POTW depends on the temperature of the river. Therefore, river data on temperature is required to assess compliance with water quality standards for temperature. The limit is derived as the effluent temperature that allows the 0.3 degree C temperature increase at the edge of the chronic mixing zone in the most critical situation. The City may assume the river is at the critical condition of 17.7 degrees C all the time. In such a scenario, the Department would simply set the limit at 19.7 degrees C for the new POTW and no ambient monitoring would be needed. The second way is to collect data from the river to calculate compliance as a function of both effluent and river temperature.

41. *Comment*: Are the suggested methods for meeting temperature limits are the only methods that would work? If these methods will not meet temperature standards, does this release the City from compliance? *Response*: The requirements for doing a temperature study have been dropped. Nothing relieves the City from meeting temperature standards though. A Permittee not meeting temperature standards would have the options of ceasing discharge (finding another use for the water) or adding new treatment steps to cool the effluent to the point where it can be discharged. The list of technologies to explore was not meant to be all encompassing, but to ensure the most obvious alternatives were considered. Each listed option appeared deserving of thorough consideration. It is disappointing that although these were brought to the City's attention well before designs for the POTW were finished, no evaluation of these technologies was ever provided to the Department, or apparently ever done. The City will have to meet temperature standards, regardless of whether any single solution provides the answer by itself. Each will provide some benefit, and it may take several technologies in conjunction to meet the temperature standards. We will, however, allow the City to assume the responsibility for conducting this task and the responsibility for understanding and complying with the standards and requirements for temperature criterion upon commencing discharge.

42. *Comment*: Is it appropriate to assign mixing ratios at this time, prior to an outfall study? *Response*: The acute and chronic mixing zone ratios established for the dry weather season were calculated by using the 7Q10 low flows and giving the City the maximum allowable percentage of the river for dilution. Therefore, a mixing zone study could find that these mixing zone ratios are not achieved by the edge of the mixing zone boundary, and must be reduced. This could result in more stringent limits. Deferring a decision on mixing zone ratios again, however, would mean that the permit could not allow the discharge from the new facility. The Department determined that there was a high enough confidence that the presumed mixing zone ratios could be achieved by the edge of the mixing zone boundaries to allow their use in this permitting action.

43. *Comment*: The City requested ammonia mass limits based on 2.0 MGD dry weather, 4.3 MGD wet weather, and 6.1 MGD maximum daily peak flows. As this methodology was used for BOD and TSS, why not use it for ammonia? *Response*: Ammonia limits for the interim period were included in the permit that was exhibit B to the Consent Decree. This established a performance basis for ammonia based on 95th percentile concentration for discharge of ammonia. Since flow and ammonia concentration are inversely proportional in a facility with a uniform loading, it

would be inappropriate to multiply the maximum ammonia concentration allowed by the maximum flow expected to derive a performance based limit.

44. *Comment*: The City notes that increase solids capture rate (for compliance with TSS limits) has resulted in increased ammonia load to the plant, and I/I efforts have reduced ammonia dilution. Also, in referenced comment #60 of the entity review draft, the City proposes that ammonia mass limits are required to account for the low flows from I/I reduction and dry weather patterns. *Response*: In other comments, the City requests that the interim limits of the permit attached to the Consent Decree be restored. The Department calculated the permit limits according to our permitting rules, but we gave the city the option to retain their previous concentration-based limits. While several other comments seem to clearly indicate that the concentration-based ammonia limits were desired, this comment goes the other way. After receiving these mixed signals, we seemed to obtain a clear concurrence to shift to the mass based limits indicated by our analysis of the 95th percentile performance basis. The rationale present in comment #60 of the entity review largely aligns with our rationale, except that the 95th percentile effluent loading value must be used to establish compliance levels rather than the methodology proposed by the City.

45. *Comment*: The schedule for constructing a new POTW should be the final dates in the Consent Decree. *Response*: See response to comment #10.

46. *Comment*: The 85 percent removal rate is not in the Consent Decree or draft permit. *Response*: The 85 percent removal requirement is a requirement for all treatment works treating domestic sewage, and reflects "secondary treatment" levels. The Permittee was required by Order in 1988 to achieve this removal rate, and should be well familiar with the fact that this is the minimum standard of treatment required in state and federal regulations governing the issuance of NPDES permits.

47. *Comment*: Can the fact sheet better define the allowance that the use of chlorine for O&M is acceptable if it is monitored? *Response*: The fact sheet is amended to include this response to comments. Our expectations of monitoring are that the POTW will monitor its effluent for chlorine when chlorine use is occurring. When any Permittee finds that levels of a pollutant in the effluent have exceeded a water quality criteria they shall inform the Department and provide relevant information on the discharge. When this requirement applies to this situation, it must be followed.

48. *Comment*: Footnote 5 on page 28 appears to rule out any exception to the 85 percent removal rate. The City had believed the potential for an exception was granted by the Consent Decree. *Response*: Our determinations as to the applicability of meeting the 85 percent removal rate was discussed in considerable detail beginning on the second page of the response to comments in the paragraph titled: REQUIRED REMOVAL RATES. This was the first of three points preceding the numbered comments. Please refer to that response.

49. *Comment*: Biosolids monitoring should not be required by this permit. *Response*: See the response to Comments #15, #19, and #31.

50. *Comment*: The permit fact sheet mentions sampling the primary effluent for toxics. This requirement is not reflected in the permit. *Response*: This requirement is necessary for a recalculation of local discharge limitations for POTWs with primary clarifiers. The permit did not require a recalculation of local limits, and therefore, the permit never required this sampling

of the primary effluent. The POTW to be constructed has no primary clarifiers in phase 1 of the facility approved for construction and therefore this requirement was dropped.

51. *Comment*: The methodology and terminology of the section Effluent Limits Below Quantification on page 31 of the fact sheet needs to be clarified. *Response*: We will be glad to work with the City to understand these requirements, and the laboratory certification staff are also generally familiar with these reporting requirements.

52. *Comment*: The fact sheet on page 29 should be updated to reflect that the biosolids program regulated the removal of solids from the POTW through a permit and biosolids management plan. *Response*: US EPA has delegated the biosolids program to the state of Washington, and the Department. This program is administered through the Department by permits to biosolids generators, and application sites are permitted by Counties. The permit fact sheet did not appropriately reflect the permitting structure currently in place.

53. *Comment*: The permit fact sheet on page 32 erroneously implies that the POTW had a delegated pretreatment program. *Response*: The POTW has responsibility for what it authorizes to be discharged to its system. This section of the permit fact sheet (top of page 32) explains permit conditions that reinforce the POTWs obligation to prohibit the acceptance of pollutants that cause pass-through or interference or otherwise violate prohibited discharge restrictions. For those non-domestic customers that are found to have such pollutants in their discharge, the City is responsible for ensuring that they have a state waste discharge permit before they are allowed to discharge, or when discharge has commenced already, as a condition of continued discharge.

54. *Comment*: Annual Industrial User Survey requirements are somewhat confusing in that it is unclear whether an annual survey or update is required. *Response*: Wording in the permit section S8.F will be changed to reflect our intent that the Permittee conduct an initial complete and thorough IU Survey by January 1, 2003. Then the Permittee shall simply re-verify the information and submit any changes to the Department on an annual basis and include the survey of industries with the permit application.

55. *Comment*: The City cannot enforce discharge prohibitions because they don't have delegated pretreatment authority. *Response*: The POTW has the authority and obligation by this NPDES permit to prohibit any discharge of non-domestic wastewater that does not have a state waste discharge permit or permit by rule for discharge of the waste stream in question issued by the Department.

56. *Comment*: The City doesn't have a requirement for a spill plan in the permit, but it is mentioned in the fact sheet as though this was a requirement. *Response*: During permit development, it was determined that the Permittee did not need to develop a spill plan because they would not be using quantities of chlorine gas or hazardous substances at the new facility that warranted the development of such a plan. Please disregard this section on page 32 of the fact sheet which should have been omitted. The Department, by policy, does not revise the fact sheet after the public notice, but uses this response to comments to address changes to the basis for permit conditions.